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ABSTRACT

In nine chapters, this book considers the extent to which training programs can be utilized to improve midwifery practice and reduce the risks surrounding childbirth in rural populations. The book opens with a chapter reviewing the question of whether the availability of trained birth attendants can be linked to a reduced incidence of neonatal tetanus. The need for more rigorous field studies evaluating the long-term effectiveness of training programs is pointed out. Subsequent chapters communicate lessons learned from programs conducted in Andhra Pradesh, Sierra Leone, Burma, and Ghana. Details are provided on the design, content, duration, and results of these different programs, together with data on their immediate and long-term effectiveness. These accounts also serve to show where certain countries succeed or fail in the training of traditional birth attendants and where they have specific or common problems in evaluating or conducting training. Other chapters examine the folklore and rituals surrounding traditional birthing systems in the Philippines and Latin America and show how specific customs may influence the acceptance or rejection of new practices. The book concludes with chapters evaluating the importance of literacy instruction and supervision as components in a successful training program. (Author/RH)

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In nine chapters, this book considers the extent to which training programmes can be utilized to improve midwifery practice and reduce the risks surrounding childbirth in rural populations. Based on actual experiences in the field, chapters provide both an elaboration of specific problems encountered in different parts of the world and a critical analysis of successes and failures in overcoming them. Throughout, emphasis is placed on the need to uncover and respect the beliefs and customs held by traditional birth attendants.

The book opens with a chapter reviewing the question of whether the availability of trained birth attendants can be linked to a reduced incidence of neonatal tetanus. Noting the lack of convincing evidence, the author points to the need for more rigorous field studies evaluating the long-term effectiveness of training programmes. Subsequent chapters communicate lessons learned from programmes conducted in Andhra Pradesh, Sierra Leone, and Ghana. Readers are given details on the design, content, duration, and results of these different programmes together with data on their immediate and long-term effectiveness. These accounts also serve to show where certain countries succeed or fail in the training of traditional birth attendants and where they have specific or common problems in evaluating or conducting training. Other chapters examine the folklore and rituals surrounding traditional birthing systems in the Philippines and Latin America and show how specific customs may influence the acceptance or rejection of new practices. The book concludes with chapters evaluating the importance of literacy instruction and supervision as components in a successful training programme.

Given the paucity of well-documented studies in this field, the book will be welcomed by all health administrators, managers, and trainers concerned about the quality of services provided by traditional birth attendants and interested in practical strategies for improving midwifery practices. Anthropologists and sociologists will also appreciate the book as a rich source of detail on traditional birthing.

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THE POTENTIAL OF THE TRADITIONAL BIRTH ATTENDANT

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PREFACE

Although health services throughout the world are expanding, some 60-70% of births in developing countries still take place not with the help of these services, but with the help of a traditional birth attendant. For many of these birth attendants, however, the help they are able to give has been much improved by participation in a training programme. The World Health Organization is committed to their training and deployment as a means of extending the reach of the limited health services available in developing countries. The training of traditional birth attendants can reduce the risk of mortality and morbidity resulting from poor midwifery practice and, at the same time, help to improve the positive contributions of the traditional birth attendant to maternal and child health, family planning, and other essential components of primary health care.

Through a programme of active support, WHO is helping countries to make the best use of the great health manpower resource constituted by the traditional birth attendants. A major consultation on the subject, held in Geneva in 1973, was followed up by interregional meetings in Manila (1974) and Mexico (1979), at which countries could share experience. Since then the Organization's activities in this area have included work on the supervision of traditional birth attendants and on laws and policies affecting them, the production and distribution of teaching/learning packages, the sponsorship of evaluation studies, and the publication of several reports. This book is concerned with the evaluation of training programmes.

INTRODUCTION

The training of the traditional birth attendant is an example of the daunting problems encountered in attemps to change long-established customs among the poor in developing countries. The typical traditional birth attendant is illiterate, believes in folk models of the human reproductive process, does other work besides midwifery, and has limited opportunities to attend training sessions. Yet programmes in a variety of countries are surmounting the problems involved in improving the knowledge and practice of traditional birth attendants, with considerable success, as several of the papers in this publication show. Traditional birth attendants constitute an important resource that could be mobilized to help achieve the social goal of health for all.

1. Evaluation studies

Evidence in support of the training and utilization of traditional birth attendants is still very limited. Decisions to embark on training programmes have owed much more to imagination and determination than to the careful evaluation of pilot programmes. Several of the papers that follow are representative of the variety of evaluation studies conducted in recent years and illustrate the range and quality of the evidence such studies can yield.

Ross's paper reviews evidence on the role of the trained traditional birth attendant in reducing mortality from neonatal tetanus, a disease responsible for infant mortality rates of between 5 and 80 deaths per 1000 births in developing countries. An evaluation study of the effectiveness of dai training in Andhra Pradesh is the subject of a paper by Swaminathan, Nadamuni Naidu & Prasanna Krishna. Evaluation of the training and performance of traditional birth attendants in other countries is dealt with by Williams & Yumkella (Sierra Leone), Neumann et al. (Ghana), and Tin Tin Hmun (Burma). As well as demonstrating the effectiveness of training programmes, these studies often also reveal how programmes can be modified to make them more effective.

2. Constraints

Other papers deal with constraints on the training of traditional birth attendants. One major determinant of the effectiveness of training programmes is the extent to which they take account of existing beliefs and practices. The characteristics and relevance of prevailing ideas are the subjects of two papers: one by Recio on the Philippines, and the other by Cosminsky on the Americas. An important constraint on training methods is the fact that most traditional birth attendants are illiterate. The possibility of reducing this constraint by incorporating a literacy component in training programmes is the subject of a paper by Ryan & Kim, both of UNESCO. A paper by Walt reviews evidence bearing on the important issue of supervision after training; the extent of the health service's continuing influence on the quality of services provided by the trained traditional birth attendant will largely depend on the arrangements made for supervision.

3. Common problems

Although progress in recent years has been substantial, many countries are still far from making effective use of their traditional birth attendants. A review of trends over the 1970s found that, although countries had become much more likely to acknowledge their existence and to institute training programmes for them, it was still rare for the deployment of trained traditional birth attendants to be an integral part of national health strategy, even among countries where they attended the majority of births. India, Bangladesh, and Indonesia are important exceptions. They have embarked on programmes aimed at putting a trained traditional birth attendant in every village.

A common reason why progress has not been faster is simply the logistic difficulty of mounting a large-scale programme for the training and deployment of such attendants. Infrastructures are fragile. Rural health networks cannot easily accommodate the changes required. The high recurrent costs of national health services puts a heavy strain on scarce resources, especially at a time of world recession.

Indeed, the mounting of an adequate programme would often be most difficult in just those countries where it might offer the most advantages.

The World Health Organization has identified five spheres of activity requiring urgent attention. First, it is vital for countries where traditional birth attendants exist to make realistic assessments of their need to train them, in the light of prospective trends in the proportion of births attended by health professionals, and in the light of careful assessments of the cost of training and deploying traditional birth attendants. Secondly, there is a need for the more rapid transfer of experience from the countries that have made the most progress in this sphere to those that have made the least; the Organization will continue with its efforts to facilitate this sharing of experience. Thirdly, more emphasis should be given to evaluation as a means of improving the contribution of experience to effectiveness. Fourthly, more attention should be given to the contribution traditional birth attendants could make to family planning programmes by recruiting acceptors and encouraging their clients not to abandon dependence on breast-feeding. Finally, efforts should be made to develop strategies that will help make the most effective use of relevant traditional health services. For its part, the Organization looks forward to continuing collaboration with countries in ensuring that full use is made of the potential of their traditional birth attendants.

THE TRAINED TRADITIONAL BIRTH ATTENDANT AND NEONATAL TETANUS

David A. Ross[1]

1. Introduction

One of the most commonly stated reasons for starting a programme for the training of traditional birth attendants is that they could be taught the hygienic care of the umbilical cord and that this would help reduce the incidence of neonatal tetanus. Worldwide, this disease has been variously estimated to cause from 160 000 (1) to approximately 900 000 deaths annually (2). Neonatal tetanus has been virtually eliminated in all countries of western Europe and North America. In contrast, local community surveys have reported rates as high as 260 deaths per 1000 live births (3) though rates of 5-80 per 1000 births are more usual in the rural areas of developing countries (Table 1).

Table 1. Neonatal tetanus rates reported by local community surveys in rural areas of developing countries constrasted with selected national rates in Europe and North America

Continent and country	Date	Neonatal tetanus rate per 1000 live births		Source
		Incidence	Mortality	
Europe				
England & Wales	1970-79	0	0	4
North America				
USA	1965-66	0.0067	-	5
Africa				
Senegal	1955	80	-	6
Sierra Leone	1979-80	-	72	7
Sierra Leone	1977	-	79	8
Central America				
Haiti	1940-48	-	262	9
South America				
Colombia	1961-66	-	78	10
Brazil	1961	83	-	11
Asia				
India: Punjab	1960	-	16	12
India: Uttar Pradesh	1965-69	-	54	13
Bangladesh	1976-77	-	27	14
Papua New Guinea	1945-60	61	-	15

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[1] Former Research Fellow in Health Care Epidemiology, The Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, London, England.

On the other hand, in the 15 projects in the Americas studied in the Inter-American Investigation of Mortality in Childhood (16), neonatal tetanus was responsible for only 155 out of a total of 12 674 neonatal deaths (1.2%). However, there are several good reasons why these projects may have shown a much lower incidence of neonatal tetanus than is common in the rural areas of Central or South America: (a) two of the projects were in developed countries (Canada and the USA); (b) the highest total neonatal mortality rate in the 15 projects was only 38.8 per 1000 live births; (c) in six of the 15 projects more than 90% of deceased neonates had been born in hospitals, and in no project was the proportion less than 55%.

Recent retrospective sample surveys using a standard questionnaire have been conducted by WHO in 15 countries in Africa, Asia, and the Eastern Mediterranean. These have reported tetanus-specific neonatal mortality rates ranging from 3 to 67 per 1000 live births in rural populations (Table 2).

In the surveys shown in Table 2 that included rural areas, the proportion of the total neonatal mortality caused by tetanus ranged from 8% to 72%, most usually lying somewhere between 20% and 60%. These proportions are similar to those found in local surveys in rural areas, e.g., Teknaf, Bangladesh, 31% (14); Bangladesh, 28% (22); Colombia, 51% (10); Punjab, India, 17% (12); Uttar Pradesh, India, 53% (13); Papua New Guinea, 10% (15).

These figures emphasize the importance of neonatal tetanus in the rural areas of many developing countries. In some areas where tetanus toxoid immunization is either rare or absent, neonatal tetanus may be responsible for up to 40% of the total infant mortality, e.g., in Uttar Pradesh, India, 40% (10) and Bo District, Sierra Leone, 24% (7), 32% (8).

Neonatal tetanus is often fatal. Studies of hospital inpatients in developing countries have shown case fatality rates of between 40% and 90% (23-29), and one must assume that the vast majority of those who do not receive any treatment (who constitute, in turn, the majority of all cases) will die. Even apart from the fact that it is often unsuccessful, hospital treatment of cases is not a feasible way of making an impact on death rates from neonatal tetanus since it is prohibitively expensive, involving long stays in hospital, many expensive drugs, and artificial ventilation. Furthermore, at least some of the survivors of treatment will develop long-term neurological sequelae (30), though these may be less common in less developed (31) than in more developed (32) countries. The only rational policy is to endeavour to prevent the occurrence of the disease.

2. Traditional birth attendants and the incidence of neonatal tetanus

The commonest portal of entry of tetanus spores into the neonate appears to be the umbilical cord (33), though some may be infected through circumcision or other wounds (28). Contamination with tetanus spores can occur when the cord is cut by an unsterile instrument, of which a great variety are used for this purpose around the world, such as knives, scissors, bamboo splits, glass slivers, razor blades, sickles, etc. (9,24,26,28,34-38).

Alternatively, contamination can occur subsequently from accidental contact with soil, cloth, etc., or from substances intentionally placed on the cord, e.g., earth, ash, charcoal, cow dung, ghee, banana juice, cobwebs, herbs, salt, powder, cloth dressings, etc. (26,34-38).

It is widely believed that the practices of traditional birth attendants, who attend perhaps two-thirds of deliveries in the developing world (39), are a common cause of contamination of the umbilical cord. Their training in aseptic techniques at delivery and during the postnatal period has frequently been advocated as a potential means of helping reduce the incidence of neonatal tetanus (39-41). If a substantial reduction in neonatal tetanus incidence was achieved in practice, this alone would decrease perinatal mortality rates appreciably, quite apart from all the other potential benefits of improved prenatal, delivery, and postnatal care which should result from the effective training of traditional birth attendants.

3. Field studies

3.1 Studies of knowledge, attitudes, and practices

In an early trial of tetanus toxoid in Colombia (10), it was noted that, among babies delivered by traditional birth attendants, mortality from neonatal tetanus was higher for those delivered by attendants who presided at fewer than 10 births in the study period

Table 2. Tetanus-specific neonatal mortality rates (WHO sample surveys, 1975-84)

WHO Region and country	Population from which sample was drawn	Year	Number of live births in survey	Neonatal mortality rate per 1000 live births		Proportion of all neonatal deaths due to tetanus (%)	Source
				All causes	Tetanus		
South-East Asia							
Bangladesh	national	1978	2 432	48	27	56	17
Bhutan	-	-	283	35	18	50	17
India	rural: 11 states	1980-81	23 482	16-93	5-67	16-72	17
	urban: 12 states	1980-81	25 843	5-26	0-15	0-59	17
Indonesia	six islands	1982	4 971	21	6-65	51	18
Nepal	-	1980	3 346	37	15	39	17
Thailand	national	1980	13 659	21	5	23	17
Eastern Mediterranean							
Egypt	Alexandria	1981	-	-	3	-	17
Democratic Yemen (South)	-	1981	6 224	19	4	20	17
Ivory Coast	rural: two districts	1982	2 307	34	18	51	19
Malawi	national	1983	2 081	29	12	41	20
Pakistan	Punjab	1981	13 858	52	31	60	17
Somalia	national	1981	5 781	91	21	23	17
Sudan	rural	1982	5 117	31	9	31	21
	urban	1982	4 515	14	5	35	21
Syria	-	1981	6 762	-	5	-	17
Yemen Arab Republic (North)	-	1981	5 191	31	3	8	17

- = not available.

(20 deaths per 284 births, or 70 per 1000 births) than for those delivered by attendants who presided at 10 or more births (52 deaths per 1064 births, or 49 per 1000 births), though the difference was not statistically significant. However, the highest rate was among the 32 babies delivered by one blind attendant, 8 of whom died from neonatal tetanus. These and other, similar observations suggest that there may be substantial differences in the neonatal tetanus mortality rates for children delivered by different untrained traditional birth attendants. One might predict that these differences would be related to the practices used by the attendants in perinatal care. If training could cause them to change their practices, this should lead to significant changes in the incidence of neonatal tetanus.

Although many training programmes for traditional birth attendants have incorporated some form of assessment of any changes occurring in participants' knowledge and attitudes during the training course, there have been remarkably few good, long-term follow-up studies of whether changes in knowledge, attitudes, or, more importantly, practices persist subsequently (39).

In the Danfa Project in Ghana, it was noted that "since training, there has been a steady increase in the use of sterilized blades which are provided in the TBA [traditional birth attendant] kit (from 42% of births in 1974 to 68% in 1976, according to the special birth questionnaire reports)" (35). Also reported was a steady increase in the use of gentian violet to clean the cord rather than traditional substances such as local herbal remedies and salt (35). It is not known whether these changes were sustained after the project ended. This information would be especially interesting since a separate study of a training programme for traditional birth attendants in Ghana reported that, out of 38 attendants trained, 6 had never used their UNICEF delivery kit since training, although, when questioned, they all said that the kit helped them to assist in deliveries much more efficiently and hygienically. Five had forgotten the use of 8 or more of the 18 items in the kit (39).

The Lampang Project in Thailand (1974-79) included the training of traditional birth attendants (42). In 1978, 86 trained attendants and 122 untrained attendants were questioned about their midwifery practices (43). The trained attendants achieved significantly more "correct" answers ($P \leqslant 0.01$) to the questions relating to: their reported handwashing practices, the instrument used to cut the cord and its pre-cleansing, and the management of the cord after cutting, all of which should be related to neonatal tetanus incidence. In a separate smaller study of 33 birth attendants trained under the Lampang Project and 18 untrained attendants, these findings were confirmed during interviews with the attendants themselves. However, when mothers of recently born infants were questioned about the practices actually used by the same birth attendants, it was found that some had resorted to their former practices, though they had not reported this when interviewed. For example, 5 of the 33 trained attendants were reported by the mothers not to have brought their midwifery kits when attending deliveries (44).

Of course, given the problems involved, it is unrealistic to expect training programmes for traditional birth attendants to be completely successful. That they can, however, have impressive results is clear from the reports presented elsewhere in this book. For example, the evaluation by Neumann et al. of a project in Ghana mentions the considerable success achieved in persuading traditional birth attendants to send their clients for prenatal examinations at the local health centre. A comparison by Swaminathan et al. of trained and untrained traditional birth attendants in Andhra Pradesh has found the former much more likely than the latter to report that their clients had received two doses of tetanus toxoid. From Sierra Leone, Williams & Yumkella report that tests of traditional birth attendants' knowledge and performance revealed a very satisfactory level of achievement in most cases.

3.2 Studies of the impact of the training of traditional birth attendants on the incidence of neonatal tetanus

The ultimate test of the effectiveness of the training of traditional birth attendants in relation to neonatal tetanus is whether or not it helps to reduce the incidence and mortality rates. Evidence on this comes from four major sources: studies of programmes including both tetanus toxoid immunization and the training of traditional birth attendants or the training only, case studies, and controlled studies.

3.2.1 Studies of programmes including both tetanus toxoid immunization and the training of traditional birth attendants

There have been several studies of neonatal tetanus incidence in programmes in which traditional birth attendants have been trained as part of a more comprehensive health programme that also included tetanus toxoid immunization. The findings of three such studies are summarized below.

Serabu Hospital, Sierra Leone, started a primary health care programme in the surrounding chiefdom in 1976 (7,45,46) in which a detailed longitudinal evaluation of the impact was included. As part of this, an annual survey by questionnaire of all women aged 15-44 years was conducted to establish the total and cause-specific infant mortality rates during the previous 12 months. This was cross-checked in a sample of villages against records of births and deaths kept by the clerk of the village health team and against an annual census. The programme was based on the formation of village health teams (which included all the traditional birth attendants) and their involvement in a process of mutual education and active community participation. Traditional birth attendants were trained in improved perinatal care and encouraged to refer pregnant women for antenatal care, which included tetanus toxoid injections. Within one year of starting the programme in 11 villages a highly significant ($P \leqslant 0.001$) reduction was noted in both the mortality rate for neonatal tetanus and the total infant mortality rate (Table 3).

Table 3. Infant mortality by reported cause of death in 11 villages involved in the Serabu Hospital Village Health Project[a]

Reported cause of death	1979-80 (no. of live births: 403)			1980-81 (no. of live births: 262)		
	No. of deaths	% of total	Rate per 1000 live births	No. of deaths	% of total	Rate per 1000 live births
neonatal tetanus	29	24	72[b]	3	7	11[b]
diarrhoea	20	16	50	6	13	23
fever/convulsions	23	19	57	12	27	46
measles	10	8	25[c]	-	-	-[c]
respiratory disease	3	2	7	1	2	4
meningitis	2	2	5	2	4	8
subtotal	87	71	216	24	53	92
don't know/other	36	29	89	21	47	80
Total	123	100	305[d]	45	100	172[d]

[a] Sources: 7; D. A. Ross, unpublished information, 1983.

[b] $\chi^2 = 11.41$ ($P < 0.001$).

[c] $\chi^2 = 5.03$ ($P < 0.025$).

[d] $\chi^2 = 14.28$ ($P < 0.001$).

Since then, this reduction in mortality from neonatal tetanus has been sustained, and the rate has decreased virtually to zero (D. A. Ross, unpublished information, 1983). Any case that does occur in the programme now leads to a major inquest conducted by the relevant village health team and the community itself. Unfortunately, the immunization status of pregnant women was not included in the evaluation, though there was indirect evidence that it had risen considerably.

The Bohol Project in the Philippines trained traditional birth attendants as part of a comprehensive maternal and child health and family planning programme, which also included tetanus toxoid immunization of pregnant women (47,48). By 1979 only 1% of all recorded births in Bohol had been conducted by an untrained traditional birth attendant (49). A dual reporting system (48,49) revealed a highly significant reduction in deaths from neonatal tetanus (Table 4).

Table 4. Neonatal tetanus mortality rates in Bohol Province, Philippines[a]

Year	No. of live births	Deaths from neonatal tetanus	
		No.	No. per 1000 live births
1975	10 260	26	2.53[b]
1976	11 012	12	1.09
1977	11 849	8	0.68
1978	11 949	4	0.03[b]
1979 (Jan.-June)	5 643	2	0.03

[a] Source: 49.

[b] $\chi^2 = 18.2$ ($P < 0.001$).

However, the proportion of pregnant women receiving two doses of tetanus toxoid also increased from approximately 40% in 1976 to approximately 60% in 1978 (49), and it should be noted that the mortality rates at the start of the project (2.53 per 1000 live births in 1975) were already very low.

Also in the Philippines, a more general review of selected provinces showed that the average number of neonatal deaths declined from 49 in 1973-75 to 41 in 1976-77 and to 29 in 1978 in provinces where 25% or less of the traditional birth attendants had been trained - an overall decline of 41%. In provinces where 40% or more of them had been trained, the equivalent numbers were 41, 28, and 6 - an overall decline of 85% (49). Such figures, which are not even expressed as rates, are difficult to interpret without knowing the tetanus toxoid immunization rates, etc.

While the results of these studies are impressive, it is not possible to attribute them to improved perinatal care resulting from the training of traditional birth attendants alone, since the tetanus toxoid immunization of pregnant women was a major objective of all three programmes.

3.2.2 Studies of programmes including the training of traditional birth attendants, but not tetanus toxoid immunization

There have been very few such studies since the effectiveness of tetanus toxoid immunization was demonstrated in the 1960s. Programmes have, quite rightly, tended to include immunization as well as the training of traditional birth attendants. In fact, it would be unethical to withhold tetanus toxoid from a control group to allow such a study to be conducted. This type of study could be conducted, therefore, only in an area of the world in which tetanus toxoid is not yet available. There are now very few such areas.

A study of neonatal tetanus in Haiti included an annual census of the 10-square-mile area surrounding the base hospital. As part of the 1972 census, all women were asked the date of birth, present status, and, in the case of death, cause of death of all their offspring. From this, the neonatal tetanus mortality rates were calculated for all periods between 1940 and 1972 (9). The results are shown in Table 5. There was an appreciable reduction in the reported neonatal tetanus mortality rate after the instruction of traditional birth attendants started in 1948 and before tetanus toxoid became available locally in late 1961, after which the rate declined dramatically. These data have been used to support the hypothesis that the training of traditional birth attendants leads to a reduction in neonatal tetanus (9), but it should be noted that the data are based on restrospective questioning about events that occurred up to 30 years previously, and there

Table 5. Neonatal tetanus deaths in rural Haiti[a,b]

Period	Characteristics of period	Neonatal tetanus deaths per 1000 live births
1940-48	prior to national training programme for traditional birth attendants	262.2
1949-55	during training programme, prior to availability of hospital treatment	220.5
1956-62	hospital treatment for tetanus, training of traditional birth attendants by hospital nurses	136.9
1963-66	immunization of pregnant women clients in hospital clinics	78.5
1967-68	immunization of women in market-places by hospital team	35
1969-70	immunization after door-to-door invitation by community workers	5
1971-72	resident home visitor follow-up by hospital team	0

[a] Source: reference 9.

[b] Based on 2574 fertility histories, Albert Schweitzer Hospital 23-village study, Deschapelles, Haiti, 1972.

was no adequate control group. Furthermore, a similar survey of the same area in 1968-69 reported neonatal tetanus mortality rates of 271.4 per 1000 live births for the period 1940-44, and of 204.7 per 1000 live births for the period 1945-49 (3). Thus, there appears to have been a substantial decline before the start of any training of traditional birth attendants. One may ask, however, whether a tetanus-specific neonatal mortality rate of more than 250 per 1000 live births is credible. Unless all other causes of infant and child mortality were very low in this area of rural Haiti in the 1940s (which seems exceedingly unlikely), it is difficult to see how the population could have sustained itself in the circumstances, let alone grown in number.

A very interesting programme has been reported from the Thies Region of Senegal (50,51), which gives a three-week training course to women aged 35-45 selected by villages. (N.B. It is possible that these women are not true, practising traditional birth attendants, since, in most parts of West Africa, such attendants are usually over 45.) After training, the women are grouped together in one of three maternity centres, each of which serves a population of between 3000 and 10 000 living in 5-40 villages. They work together in teams of 2-4 women in 48-hour shifts.

It is not known if any population-based survey was done to establish whether the incidence of neonatal tetanus had been affected by these measures. However, the following results have been reported (50). During the first five years (1970-74) after the three maternity centres had started functioning, 2335 deliveries were recorded in them. During the same period, a review of all neonatal tetanus cases in the nearby hospital of Khombole revealed a total of 36, only 3 of which were from villages involved in the programme. By comparison, during 1964-65, a total of 45 cases were admitted to Khombole Hospital, 38 of which came from these villages.

Either the incidence of neonatal tetanus had decreased in the programme villages, or a much smaller proportion of the cases occurring in the programme villages were attending the hospital in 1970-74 than in 1960-65. The former explanation is the more likely. The authors do not offer any explanation why the number of cases attending hospital from non-programme villages had increased from 7 in 1960-65 to 33 in 1970-74. Although they state that tetanus toxoid immunization and passive immunization of newborn children with antitetanus serum were available in Senegal at the time of the study, they imply that coverage was likely to be low in the study area (50). If the contribution of tetanus toxoid immunization was minor, then this study provides fairly strong circumstantial evidence that training women and using them as they were used in this Senegalese project can lead to a substantial fall in the incidence of neonatal tetanus.

3.2.3 Studies of cases of neonatal tetanus

There have been several studies of hospital cases of neonatal tetanus, in which the delivery attendant was identified retrospectively. A few examples of these were reviewed in section 3.2.1 in which some of the problems of interpretation arising in such studies were pointed out. In two studies some of the deliveries had been carried out by traditional birth attendants, both trained and untrained. In Indonesia, of 44 infants with neonatal tetanus admitted to a hospital in Bandung, 40 had been delivered by traditional birth attendants (23 trained, 6 untrained, and 11 of unknown status) and 4 by trained midwives (52). A similar study in India (53) found that, of 50 patients with neonatal tetanus admitted to a hospital in Gorakhpur, 33 had been attended by relatives and 17 by traditional birth attendants (8 trained, 9 untrained).

These studies do not inform us whether the training of traditional birth attendants decreases the incidence of neonatal tetanus, but only that it did not totally eliminate neonatal tetanus among the children delivered by such attendants.

3.2.4 Controlled studies

A review of the literature revealed three controlled trials of the training of traditional birth attendants and neonatal tetanus: one case-control study and two cohort studies. The case-control study was conducted in rural Punjab, India (34) and covered 44 inpatients at a hospital in Chandigarh. The control for each patient was the first recently delivered child aged more than one month to whom the delivery attendant concerned chose to take investigators - invariably a healthy infant. All the patients had been delivered by traditional birth attendants (31 untrained, 6 partially trained, and 7 trained). However, since patients and controls were matched for delivery attendant, it is impossible to analyse the relative risks involved in delivery by a trained or by an untrained attendant. The study also reported that the aseptic measures taken by most of the trained attendants were as casual as those taken by the untrained ones, both at the time of delivery and in the subsequent care of the umbilical cord. Obviously the extremely small numbers of deliveries by each subgroup mean that these worrying findings must be interpreted cautiously.

A small study of the outcome of 283 births attended by hospital midwives (18 births), trained midwives (115 births), partly trained "bidan kampung" (121 births), and untrained attendants (29 births) was conducted as part of a detailed study of traditional birth attendants (4 trained or partly trained, 2 untrained) in rural Malaysia (37). The author reported that "there is no doubt that the partly-trained bidan kampung are less unhygienic with regard to cutting and dressing the cord than the untrained bidan kampung. Not only have they discarded the sembilu (sliver of bamboo) and replaced it with a pair of scissors, but they have also discarded the traditional cord dressings for flavine-in-spirit" (37). The neonatal mortality rates, perinatal mortality rates, and neonatal tetanus mortality rates were established for children delivered by untrained attendants, partly-trained attendants, and trained midwives. All these rates were highest among births attended by untrained attendants, intermediate among those attended by partly trained attendants, and lowest among those attended by trained midwives. For example, the neonatal tetanus mortality rates per 1000 live births were 34, 12, and zero respectively. Because only the rates are reported and the number of live births on which these rates are based cannot be the same as the total number of births in the study, statistical tests cannot be done on these data, but since the rates must be based on a maximum of 5 deaths in any one group, there is no likelihood of these differences being statistically significant.

The largest and most recent controlled trial was conducted in rural Bangladesh (22). Nine unions (administrative areas) were randomly selected for study. In three of them, traditional birth attendants were trained (the TBA area), in three others tetanus toxoid was given to pregnant women (the toxoid area), and the remaining three served as the control area. A total of 2482 women were included in the study, each of whom gave birth to a liveborn infant. "Of these, 713 were delivered by trained TBAs [traditional birth attendants]. 771 were immunized against tetanus (two doses) and the remaining 998 were attended by untrained TBAs or relatives and did not receive tetanus toxoid."(22)

The women in the three groups were reasonably comparable in terms of age, age at first marriage, and age at menarche. The average number of living children, number of pregnancies, and age of the last child were all lowest in the TBA area. The toxoid area was intermediate and the control area highest in terms of median age of the last child and mean number of pregnancies, but this order was reversed for the median number of living children. The relationship between the mean number of pregnancies and the median number of living children should reflect the extent of pregnancy wastage which may, therefore, have been higher in the toxoid area than in the TBA area.

The results are presented in Table 6. (The tests of statistical significance were performed by the author, using the X^2 test, and it was assumed in the calculations that there were no multiple pregnancies.) It can be seen that both the total neonatal mortality rate and the neonatal tetanus-specific mortality rate were very significantly lower in both the TBA area and the toxoid area in comparison with the control area. At face value, therefore, this study provides very strong evidence that training traditional birth attendants, even without tetanus toxoid immunization, can lead to a highly significant reduction in both the neonatal mortality rate from tetanus and the total neonatal mortality rate. However, there are some omissions from the published report of this study (22) that make it difficult to assess the likely validity of its results.

(a) No pre-intervention information is presented. The fact that several demographic characteristics of the women were similar in the three areas and that the nine unions were assigned to the three groups at random decreases the likelihood of the three areas being substantially different in terms of neonatal mortality rates by each cause before intervention. On the other hand, the lack of pre-intervention data means that at least part of the differences observed between the three areas may have predated intervention. It should be noted that the proportion of all deaths due to neonatal tetanus in the TBA area (4 out of 17 = 24%) was only marginally lower than the corresponding proportion in the control area (24 out of 85 = 28%). Obviously this may have been due to the training of traditional birth attendants having reduced neonatal deaths from other causes as well as tetanus. Alternative hypotheses would be that the areas differed substantially before intervention, or that the detection rate of all neonatal deaths was higher in the control area than in the TBA area.

(b) No information is given on the criteria for the inclusion of women in the three study cohorts or for exclusions. For example, if women in the TBA area had previously been immunized with tetanus toxoid, were they excluded?

(c) It is not indicated how the live births, neonatal deaths, and causes of death were identified, whether the method used was similar in the three areas, and whether any checks were performed for observer error within or between findings.

(d) The time interval between the training of traditional birth attendants and the study is not stated, and no details of the duration or content of the training and supervision are given.

(e) It is not clear what other health care services were available in the three areas.

Even if all these potential flaws in the study did not lead to biases sufficient to have altered the results substantially, it is important to note that the results appear to be based upon those individuals within each of the two intervention areas who were actually subject to the intervention (see above). For example, all 771 women in the toxoid area study group had received two doses of tetanus toxoid. In a service programme, some women in an area in which tetanus toxoid immunization was made available would receive two doses, some one, and others none. Thus the study's results relate to an ideal situation in which total coverage is achieved, rather than the more usual situation in which coverage is only partial.

Table 6. Neonatal deaths in the three areas of a field trial in rural Bangladesh[a]

Cause of death	Control area				TBA area				Toxoid area			
	Neonatal deaths			Significance test[c]	Neonatal deaths			Significance test[c]	Neonatal deaths			Significance test[c]
	No.	%	Rate[b]		No.	%	Rate[b]		No.	%	Rate[b]	
Tetanus	24	28.2	24.0	1, 2	4	23.5	5.6	1	1	3.3	1.3	2
Birth injury	13	15.3	13.0	3, 4	3	17.6	4.2	3	9	30.0	11.7	4
Respiratory distress syndrome	12	14.1	12.0	5, 6	2	11.8	2.8	5	9	30.0	11.7	6
Respiratory infection	17	20.0	17.0	7, 8	4	23.5	5.6	7	8	26.7	10.4	8
Others	19	22.4	19.0	9, 10	4	23.5	5.6	9	3	10.0	3.9	10
All causes	85	100.0	85.2	11, 12	17	99.9	23.8	11	30	100.0	38.9	12
No. of women			998				713				771	

[a] Source: 22.

[b] Per 1000 live births.

[c] Key:
2, 11, 12 $P < 0.001$
1, 10 $P < 0.01$
9 $P < 0.05$
3, 4, 5, 6, 7, 8 $P > 0.05$

3.3 Discussion and conclusions

In countries where traditional birth attendants are numerous, the theoretical case for training them is strong and includes the argument that their training should lead to a reduction in the incidence of neonatal tetanus, a disease that is strongly associated with poor perinatal care. With proper training and supervision of traditional birth attendants, it should be possible to ensure an improvement in hygienic care of the umbilical cord both at delivery and during the postnatal period. Since traditional birth attendants perform a large proportion of deliveries in most developing countries, their training in sufficient numbers should make a major contribution to reducing the incidence of neonatal tetanus, as well as having other very important effects on the health of both mothers and infants.

As this review has demonstrated, evidence that, by itself, the training of traditional birth attendants does lead to a reduction in neonatal tetanus incidence in practice is by no means conclusive. None of the relatively few studies which have been published on this topic to date stands up to detailed methodological scrutiny, though the vast majority are encouraging rather than discouraging.

The need for further research on the effects of such training that could stand up to scientific scrutiny would appear to be compelling. It is essential for more rigorous field studies to be conducted on the long-term effectiveness of training in changing the knowledge, attitudes and practices of traditional birth attendants.

Two longitudinal intervention-control studies of the training of traditional birth attendants currently in progress in southern Sierra Leone show what could be done (Edwards, N., personal communication). In the first, a group of urban-trained attendants are being compared with untrained attendants in a prospective cohort study. In the second, attendants have been randomized to receive either rural-based training or no training, and then followed up. The data being examined include infant mortality rates, neonatal tetanus mortality rates, antenatal clinic attendance rates, and the number of family planning acceptors recruited per attendant. However, such studies are both time-consuming and costly, since they involve keeping very large numbers of women under surveillance for several years. It may be possible to use a retrospective case-control study design to test the impact of the training of traditional birth attendants on neonatal incidence in areas where some attendants are trained and others are not. This would probably be much cheaper and less time-consuming than a longitudinal cohort study. Whichever study design is used, knowledge of the immunization status of the mothers will be essential, as this is a major potential confounding factor.

Although tetanus toxoid immunization can be viewed as a potential confounding factor in the type of epidemiolological study described above, it is, of course, a potential strategy for preventing neonatal tetanus in its own right.

There is conclusive evidence that tetanus toxoid immunization, either of all pregnant women or of all women of child-bearing age, can eliminate neonatal tetanus (3,10,15). The major problems with tetanus toxoid immunization are logistic. It requires a large-scale, efficient infrastructure, if it is to succeed in bringing viable vaccine to a sufficiently large number of recipients. Such an infrastructure does not always exist, especially in the rural areas of developing countries, which are both where most traditional birth attendants practise and most of the world's population still live.

Obviously the training of traditional birth attendants and tetanus toxoid immunization are not mutually exclusive strategies. In fact it would seem logical for the training programmes to emphasize the importance of tetanus toxoid immunization and teach the participants to encourage women to receive it. This might be achieved by referring women to antenatal clinics, by persuading women to assemble for mass campaigns, or by having the birth attendants themselves take a more active role in immunization. It is advisable to employ a strategy of combining tetanus toxoid immunization and the training of traditional birth attendants in the prevention of neonatal tetanus.

Perhaps the most important study that should be conducted on the health impact of the training of traditional birth attendants, therefore, would be one in which the impact of tetanus toxoid immunization alone was compared with the impact of a programme combining tetanus toxoid immunization with such training, to establish whether the addition of the training component was associated with an incremental decline in tetanus-specific neonatal mortality or total neonatal mortality.

In conclusion, it should be stressed once again that the improvement of practices affecting the umbilical cord is not the only potential benefit from the training of traditional birth attendants. The training programmes include many other components such as identification and referral of at-risk pregnancies, management of labour, management of delivery, maternal and infant nutrition, etc. (41), all of which would help to improve the health of mother and child, if training and supervision were effective.

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AN EVALUATION OF *DAI* TRAINING IN ANDHRA PRADESH

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1. Introduction

The traditional birth attendant, termed *dai* in India, plays a very significant role in midwifery practice in almost all developing countries. It is estimated that the *dais* deliver 50-60% of the infants born in rural areas of India. Apart from considerations of tradition and culture, the *dai*'s nearness and easy availability to the community make her the most suitable person for conducting deliveries in rural areas. In addition, she plays an important role in providing assistance and guidance to rural women before and after delivery, including domestic help during the prenatal, natal, and postnatal periods.

India is among the developing nations that recognize the traditional birth attendants' important contribution to the community, and it has initiated training programmes for them in an effort to integrate their services with the existing health infrastructure in order to provide better maternal and child health care. The main objectives of these training programmes have been:

(a) to improve maternal and child health services in rural areas so as to reduce infant and maternal mortality, by equipping *dais* to do their work in a systematic and scientific manner; and

(b) to involve *dais* in family planning as a means of promoting the concept of the small family as the norm in rural communities.

The scheme for training *dais* was first introduced during the second five-year plan in 1957, with UNICEF assistance, as a central sponsored programme in the area of maternal and child health. The scheme was continued in each of the subsequent five-year plans up to 1977. During the fourth plan (1969-74), the scheme was transferred to the family planning programme.

In the second five-year plan (1957-62) about 15 000 *dais* were trained. Another 12 000 were trained during the third plan (1962-67). During the fourth plan (1969-74), as against a target of 40 000, only 16 500 *dais* were trained. The total number of *dais* trained up to 1977-78 in the fifth plan was about 65 000. During the sixth plan (1978-83), the aim was to ensure that there would be one trained *dai* for every village in the country.

In the past, the duration of the training course for *dais* was 6 months; they were paid a stipend of Rs 3 per day, and they were not provided with maternity kits. Perhaps these factors partly explain their lack of enthusiasm for training. However, the fact that a large number of them voluntarily underwent training was a clear indication of a positive attitude towards the organized rural health services.

Since the fifth five-year plan, the duration of training has been reduced to one month. Only 2 days a week are spent at the subcentres for instruction, demonstrations, etc. Trainees spend the other 4 weekdays in the field under the active supervision of female health workers and health assistants. The stipend has been raised to Rs 300 per month, and at the end of training each trained *dai* is provided with a maternity kit free of charge. In addition, she is entitled to receive a payment of Rs 2 for every delivery she conducts, provided the case has been registered at the subcentre, primary health centre, or maternal and child health centre.

Today, trained *dais* in rural areas are in a position to undertake voluntary work in maternal and child health, family planning, and nutrition in the community. Auxiliary nurse midwives and lady health visitors are required to provide them with technical support and guidance on their day-to-day activities. The tasks expected of the *dai* are:

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(a) to register every pregnant woman she contacts at the subcentre or primary health centre;

(b) to provide antenatal, natal, and postnatal care to mothers;

(c) to educate mothers so that they attend a nearby subcentre for regular check-ups, tetanus toxoid immunization, and nutrition education;

(d) to ensure aseptic arrangements for home confinements;

(e) to refer pregnant mothers to a primary health centre in the event of any complication or any problem beyond her competence;

(f) to educate and motivate mothers on the concept of the small family, and advise them about the availability of family planning services at the subcentre and primary health centre;

(g) to educate mothers about breast-feeding, weaning, immunization, and spacing between children;

(h) to report vital events relating to mother and child to the health centre concerned;

(i) to educate every pregnant woman to take iron and folic acid tablets as prescribed;

(j) to inform mothers about the availability of medical termination of pregnancy;

(k) to coordinate her work with a subcentre for early registration, regular tests, and check-ups of mothers and children, postnatal visits of health workers and health assistants, and family planning motivation; and

(l) to apply for replenishment of the maternity kit, when necessary.

2. Objectives and methodology

The authorities responsible for the dai training programme, which has been funded by the United Nations Fund for Population Activities since 1978, required its effectiveness to be evaluated after an appropriate period. The Government of India entrusted the evaluation to the National Institute of Health and Family Welfare.

The main aim was to evaluate the quality of the dais' training, their present functioning, changes in their practices, their collaboration and coordination with health service personnel, and community perception of their services. Another aim was to assess the performance of health workers in relation to the training and technical guidance of dais.

The evaluation encompasses dai training in the 16 major states of the country. This report deals with the study conducted in the state of Andhra Pradesh. A uniform methodology was adopted for all states.

2.1 Sampling design

At each stage of selection, a simple random sampling procedure was followed. In Andhra Pradesh the districts of Medak, East Godavari, and Anantapur were selected. From each district 4 primary health centres were selected. On the basis of the available records of each of the 4 centres, the villages in its area were categorized into 3 groups:

- The headquarter village of the primary health centre
- Villages with subcentres
- Remote villages (more than 5 km from either the primary health centre or a subcentre).

Sampling frames were established for both trained and untrained dais for each category of village, respondents being selected as follows: 1 trained and 1 untrained dai from the headquarter village; 2 trained and 2 untrained dais representing villages with subcentres;

and 3 trained and 3 untrained dais representing remote villages. Also interviewed were district medical and health officers, district public health nurses, medical officers of primary health centres, auxiliary nurse midwives, and mothers delivered by dais. The number interviewed in each category and other details are given in Table 1.

Table 1. Selection of respondents and numbers interviewed

I.	Total number of districts:	23	
	Selected districts:	3:	Medak, East Godavari, and Anantapur

II.	Name of district	Total number of primary health centres	Selected primary health centres
	Medak	15	4: Atmakur, Mogadampally, Tekmal, and Pullur
	East Godavari	28	4: Obulanka, Kotikesavaram, Kundur, and Indukurpet
	Anantapur	22	4: Chenna kottapalli, Kottacheruvu, Roddam, and Rolla

III.	Type of personnel interviewed	Number expected	Number interviewed
	. district medical and health officer/district public health nurse	3	3
	. primary health centre medical officers	12	12
	. auxiliary nurse midwives/ female health workers:		
	trainers	24	17
	non-trainers	24	16
	. dais:		
	trained	72	67
	untrained	72	67
	. mothers delivered by the selected dais	720	637

2.2 Data collection

One senior investigator and two junior investigators were assigned to each district. The investigators stayed at the headquarter primary health centre and visited the selected villages, using the centre's vehicle. During the survey the investigators were frequently monitored by the authors of this paper. Most of the data were collected with the help of 6 standard schedules. Because the training programme was suspended during the period of the survey, observation was limited to the kit and other training and educational materials.

2.3 Problems in the field

The investigator had to devote considerable time to establishing the list of trained and untrained dais in each primary health centre. Apart from this, no other difficulty in the collection of data was reported by the investigators.

The investigators reported that, in all places surveyed, the primary health centre's staff, the dais, the mothers, and the members of the community were very cooperative.

3. Profile of dais

Data on the age, marital status, religion, caste, education, family occupation (main and secondary), and income of both trained and untrained dais were collected and then analysed separately according to training status and type of village studied. For none of the characteristics studied were any significant differences observed, either by training status or by type of village studied. A general profile of all the dais studied is presented in Table 2.

Among the dais studied, 59% had stated that "dai" was their traditional family occupation. Most of the others said either that they had made their own way into the profession or that they had been introduced to it by close relatives who were themselves dais.

Most subjects reported "dai" as their main occupation. Twelve per cent were landless agricultural labourers, and around 2% were farmers. The secondary occupation of 45% of the dais was found to be that of landless agricultural labourer; the rest were housewives or engaged in household industry, etc., when not acting as dais.

The average monthly income of the family was found to be Rs 200, ranging from Rs 50 to Rs 1000. Most of the families (46%) had an income of between Rs 100 and Rs 200, and around 22% had one of between Rs 200 and Rs 300.

4. Organization of dai training

4.1 Targets and achievements

According to the medical officers of the primary health centres, 75-100% of the target for training had been achieved in all three selected districts over the 3-year period 1978-81 (Table 3).

4.2 The trainers

Of a total of 33 female health workers interviewed, all but 2 were currently married or had been widowed. All of them had school beyond middle-school level, and many had higher secondary education. Their average length of service was 11.5 years. Only 5 of them had fewer than 5 years of service. No differences were observed in the profile between the trainers and the non-trainers.

Out of the 33 health workers selected for the study, 17 had had experience of training dais. A total of 59 groups, each consisting of between 15 and 28 dais, had been trained by these workers. One or more groups had been trained by each trainer, and the majority had trained more than 4 groups.

Table 2. Profile of dais

Number surveyed	134
Trained	67
Untrained	67
Mean age (years)	42.7
Marital status:	
currently or ever married	100%
widows	28%
Average number of living children	4.2
Educational status:	
illiterates	92%
others	8%
Traditional family occupation as *dai*	59%
Experience as *dai* (years):	
mean	12.4
range	3 - 15
Monthly income of family (rupees):	
mean	200
range	50 - 1000
Religion:	
Hindu	85%
Muslim	4.5%
Christian	10.5%
Caste:	
middle caste	50%
scheduled tribe	26%
scheduled caste	21%
high caste	3%

Table 3. Targets and achievements with respect to number of dais trained (medical officers' responses)

Year	Districts								
	Medak			East Godavari			Anantapur		
	Targets	Number trained	% achievement	Targets	Number trained	% achievement	Targets	Number trained	% achievement
1978-79	26	26	100	19	19	100	28	28	100
1979-80	26	26	100	15	14	93	21	21	100
1980-81	18	18	100	25	19	76	18	18	100

4.3 Selection of dais for training

In all three districts surveyed, it was reported that a complete list of *dais* in each village in the area was available. Fifteen of the trainers reported that a list of *dais* was available at the subcentre level. According to the medical officers of the primary health centres, existing guidelines were used when selecting *dais*. Age, experience, competence, popularity with the community, and residence in remote villages were the main criteria. The female health workers also considered competence and popularity with the community to be the main criteria used in selecting *dais* for training. The fact that no complaint or representation was received by the authorities from any source about the selection of *dais* for training indicates the extent of community support regarding the choice of candidates. However, in one of the districts, the untrained *dais* complained about their omission from the course. The authorities were able to explain to them that they would have to await their chance.

The female health workers had been the *dais*' source of information about the training programme in most cases (79%), and most of the *dais* who underwent training (77%) stated that these workers had also been mainly responsible for motivating them to join the training programme. It is of interest to note that *dais* who had already been trained were mentioned as the source of information in only 1.5% of cases, and in only 21% of cases was the community mentioned as a factor motivating *dais* to take the training course.

4.4 The training process

To help the trainers in their task, copies of guidelines and schedules had been distributed. The guidelines stated that the total duration of training for *dais* would be 30 working days. Each *dai* would attend the primary health centre or subcentre twice a week; on the remaining days she would accompany the female health worker on home visits. The training lasted 4 weeks. The frequency of each type of training (e.g., home visits), as reported by *dais*, is shown in Table 4. Most (90%) of the trainers said the frequencies were as prescribed in the guidelines. However, the data in Table 4 are not consistent with the guidelines.

Table 4. Frequency of each type of training (percentage breakdown of *dais*' responses)

Frequency	Type of training		
	Classroom teaching	Home visits	Clinical (subcentre/primary health centre) teaching
daily	32.3	0.0	30.9
twice a week	44.6	35.1	16.4
more than twice a week	23.1	64.9	52.7

Information was elicited from *dais* and trainers on the content and methods of the training course. According to the trainers, the topics dealt with during training were: aseptic measures, general health check-ups of mothers and children, immunizations, management of labour, preparation for home confinement, and family planning methods. Their responses showed that the training programme emphasized the importance of sterilization of instruments, personal hygiene, immunization of baby and mother, preparation for home confinement, and family planning methods like the oral pill, the intrauterine device, and the condom. However, less emphasis was placed on the need for regular antenatal care and check-ups, the importance of a balanced diet, and the health of the baby. The differences in emphasis probably reflect the normal perceptions, attitudes, and practices of the female health workers and show the need to improve the trainers' awareness of the importance of some topics.

According to the trainers, the method used most commonly to ensure that trainees had acquired sufficient skill and understanding was to ask questions during and after the lessons. Not infrequently the trainees were also observed by trainers when conducting a delivery in the field. Other methods of evaluation included discussions, practice demonstrations, and oral tests at the end of training. The primary health centre medical officers involved in the training also evaluated the training programme, using such criteria as the number of deliveries conducted after training, performance as reported by auxiliary nurse midwives, and performance as assessed by personal follow-up of trained *dais*.

5. Various beliefs and practices noted by trainers

The trainers were asked to state any strange beliefs and practices they had observed while giving training to *dais*. To judge from the responses, it was not uncommon for *dais* to believe that mothers should restrict their intake of food and water before and after delivery, should keep themselves active doing domestic work to ensure a safe delivery, should give birth in a poorly ventilated and dark room "to avoid air getting in", should not breast-feed on the first day of delivery, should not accept immunizations (on the ground that they were useless), and should not take iron or folic acid tablets since (the *dais* believed) they caused "hardness" to babies.

The trainers also reported that, commonly, *dais* used unsterilized devices to cut the cord, cut it only after the placenta had been expelled, gave castor oil to newborn babies, and believed that "averting birth is a sin".

6. Efficacy of training

The effects of training on the performance of *dais* were assessed by questioning trained *dais* as well as trainers. Information on the guidance and assistance received from supervisors, particularly in relation to the problems encountered during and after the period of training, was obtained from the supervisors themselves. All the trainers had sufficient experience and competence to undertake the training, and their attitude towards training was very favourable. They perceived it as a means of improving maternal and child health services by promoting the use of aseptic techniques and better management of normal and difficult labour. In their view, the most important functions of the *dai* were early identification of complicated cases and other preventive procedures during pregnancy, and promotion of family planning.

The trainees reported that almost everything relating to the better functioning of maternal and child health services had been explained or had been the subject of demonstrations. Very few *dais* stated that they had not been instructed in the registration of pregnancy cases (3%), check-up procedures (1.5%), the anatomy of female organs (4.5%), referral procedures (4.5%), care of the perineum (4.5%), care of the newborn (3%), family planning methods (1.5%), the reporting of births and deaths (1.5%), nutrition for mother and child (1.5%), and immunization for mother and child (3%). On the other hand, larger proportions had missed demonstrations of the testing of urine samples (33%), the preparation of an enema (16%), and the use of family planning methods such as jelly and foam tablets (65%). It is relevant to note that a good proportion of the trainees (30%) stated that one of the improved midwifery practices taught was the need to observe aseptic techniques and personal hygiene.

6.1 Tests of attainment

Nearly 90% of trainees stated that oral tests had been given during training, especially on care of the cord, aseptic techniques, etc. However, much smaller proportions reported that demonstration tests had been given. Only 40% reported having been given a demonstration test on conducting normal deliveries. There seems to be a need for more tests in the form of practical demonstrations of the knowledge of trainees. Even if delivery cases are not available for demonstration, pregnant and lactating mothers can be utilized. There is thus a need to improve the training of trainers on these aspects of testing the knowledge and practice of the trainees. The same applies to the preparation of lessons. Nearly 35% of the trainers stated that they had not prepared lessons, explaining that it was unnecessary for them to do so because they were experienced personnel. The knowledge, attitudes, and practices of trained and untrained dais were assessed with regard to aseptic techniques, prevention of sepsis, and immunization of babies. The results showed that trained dais were significantly more likely to boil the cord-cutting instrument and take steps to ensure the immunization of babies.

6.2 . Performance assessment

The average number of deliveries conducted in the 3 months following the end of training was reported as 5 by trained dais and as 3.5 by untrained dais. Most deliveries were conducted without the help of the local female health worker. However, the proportion of trained dais who reported the presence of the health worker (20%) was double the proportion of untrained dais who did so (9.5%).

As a result of their training, it was expected that dais would provide better antenatal and postnatal care to their clients. In the event trained dais contacted an average of 5.4% of their clients during the early months of pregnancy, whereas untrained dais contacted an average of 3.5%. Trained dais were also more likely than were untrained dais to report that their clients had received two doses of tetanus toxoid (72% as against 51%), prophylactic treatment for anaemia (67% as against 28%), a regular check-up at the subcentre or primary health centre (45% as against 15%), and advice on various other aspects of antenatal care.

The proportion of dais reporting that they had referred cases to subcentres was significantly greater for trained than for untrained dais, though referrals were rare for both groups. The details are shown in Table 5. Trained dais were also more likely to report the motivation of mothers to accept sterilization (48% as against 24%), though they reported few referrals for the pill, intrauterine devices, or condoms.

Table 5. Referrals of mothers by dais in preceding year

	Percentage of dais reporting referral		Average number of cases referred by each dai	
	Trained	Untrained	Trained	Untrained
Referred to:				
subcentre	43.3	16.9[a]	5.22	3.32
primary health centre/hospital	11.9	9.2	3.75	3.90
private doctor	6.0	1.5	5.00	3.50

[a] $P<0.001$.

Information on the practices of trained and untrained dais at the last births attended were also collected from the mothers concerned. The findings presented in Table 6 suggest that training did indeed improve the advice given to mothers about antenatal care. According to the mothers, trained dais had also been more than twice as likely as untrained dais (74% versus 34%) to boil equipment, more likely (92% versus 76%) to wash their hands, and six times more likely (57% versus 10%) to use scissors to cut the cord.

Questioned on the subject, 95% of the mothers expressed satisfaction with the performance of their dais, both trained and untrained. This is probably because dais traditionally look after the needs of pregnant mothers and are easily accessible, whether or not they have been trained.

Table 6. Percentages of trained and untrained *dais* who advised mothers about antenatal care, as reported by mothers

Subject of advice	Trained *dais*	Untrained *dais*
tetanus toxoid	51.7	25.1[a]
prevention of anaemia	46.6	19.1[a]
home confinement	69.8	54.4[a]
regular check-up	49.3	23.3[a]
personal hygiene	18.2	65.9[a]
feeding the baby	80.9	69.5[a]
care of cord	82.4	73.8[a]
immunization	70.2	47.4[a]
family planning	49.0	27.2[a]

[a] $P < 0.001$.

7. Relationship between dai, health service personnel, and community

7.1 Dais and health service professionals

It was reported that 100% of the trained *dais* from villages with primary health centres or subcentres, and 92% from remote villages, were in contact with primary health centre staff, usually the auxiliary nurse midwife. By contrast, only 63% of the untrained *dais* from villages with primary health centres or subcentres, and 44% from remote villages, were in contact with primary health centre staff.

Dais were asked to state their reasons for contacting health service personnel. The most common reasons were to register women for antenatal care, to obtain help with complicated deliveries, and to learn how to manage difficult labour. It is interesting to note that 16% of the trained *dais* contacted health service staff to learn how to manage difficult labour, compared with 10% of untrained *dais*.

Data were collected from mothers on visits of health workers, at the request of *dais*, during deliveries. It was clear that trained *dais* were more likely than untrained *dais* to request such visits.

Dais were asked to state the type of help they gave to health service personnel. Among trained *dais*, 24% said they helped in the registration of women for antenatal care, 13% in conducting delivery, 6% in the immunization of mothers and children, and around 5% in postnatal care following deliveries conducted by health workers. In contrast, 61% of untrained *dais* said that they did not give any help to the health worker.

Dais were asked to say why they sought assistance from the health service. Of the 92.5% of trained *dais* who had sought help, 21% said they did so for cases of bleeding/postpartum haemorrhage, 10% for unspecified complications, and 57% for other reasons, mostly related to maternal and child health. Of the 52% of untrained *dais* who had sought help, 12% said it was for cases of bleeding/postpartum haemorrhage, 9% for unspecified complications, and 28% for other conditions mostly related to maternal and child health.

Both trainers and non-trainers said they had good cooperation from all the trained dais, but 3% of trainers and 38% of non-trainers said they were "not getting cooperation" or had "no contact" with untrained dais.

Of trained dais, 54% said they informed the health worker of babies needing immunization, 30% said they accompanied mothers for immunization of babies on the clinic days, and 80% said they checked later about the immunization of babies. All the percentages were considerably lower for untrained dais. It was observed that dais were not able to state the proper reasons for enquiring about immunization, which suggests a need to educate them about its benefits.

A substantial proportion (42%) of trained dais reported problems in getting their kits replenished.

7.2 Community perception of the dai's services

Only 13% of dais said they had any problems about the acceptability of their services by the community. According to the mothers interviewed, dais were virtually always available when they were needed and their services were satisfactory.

Asked to state the reasons for their satisfaction with the services of a dai, 63% of mothers attended by trained dais and 53% of those attended by untrained dais gave such reasons as: "looks after me properly and is helpful", "cooperative, affectionate, and good natured", "family dai" or "related to family", "easily accessible", etc. The same proportion (27%) of mothers attended by trained dais and of those attended by untrained dais said they were satisfied because of the care given at delivery by the dai, and mentioned such reasons as "executes delivery nicely/early/smoothly", "takes good care of baby and mother", etc. Most (63%) of the mothers surveyed said they had known their dai for more than 7 years. A further 20% had known their dai for 5-7 years.

Although most (78%) of the trained dais said no professional jealousy had been shown towards them by untrained dais in the village, 21% said such jealousy was present.

8. Payments and incentives

The majority (84%) of trained dais reported that they received a stipend in the range of Rs 250-300 during training. Others received less. The timing of payments varied from immediately after training (24%) to three months after (27%). A minority (30%) of the dais said they received an incentive from the primary health centre for registering women receiving antenatal care. Only one dai reported having been paid (about Rs 2) for actually providing antenatal care, and most had received nothing for providing postnatal care.

The average amount received from mothers attended by trained and by untrained dais for delivery services at the last birth was Rs 6-60 and Rs 6-70 respectively.

When asked to state whether they had given anything in kind for the dai's services, 73% of mothers attended by trained dais and 68% of those attended by untrained dais said they had not given anything in kind for services rendered at the most recent birth. According to 20% of the mothers, remuneration in kind consists mainly of grain or clothes.

9. Further training

Only about 20% of trained dais expressed a need to undertake further training, but most of the trainers said there was a need for retraining. Suggestions about its duration varied from a week to 3 months. Seven of the trainers said the dais needed retraining after an interval of 3 years or more.

Most of the female health workers, both trainers and non-trainers, expressed a liking for the work of training dais, and most of the trainers felt competent to do so. The one or two who did not like this work said either that it was an additional responsibility without remuneration, or that they were too young to give training to elderly ladies.

According to most of the trainers, the methods and techniques adopted for training the dais, including methods of evaluation, were adequate.

10. Conclusions

In the state of Andhra Pradesh the annual number of dais trained at each primary health centre was small. However, the target had been achieved. The selection of dais for training had followed prescribed guidelines, the main criteria being competence, popularity, and location in remote villages. Experienced, willing, and competent personnel had been involved in the training, and in general they had followed the guidelines provided for the purpose.

Stipends were paid more or less regularly during the period of training. However, payment for deliveries conducted by dais in cases they had registered earlier at the primary health centre or subcentre was said to have been irregular. While the facilities for teaching, such as seating, etc., were reported to be adequate, some problems had been encountered with regard to the supply and availability of maternity kits, teaching aids, and materials such as fetal dummies or dolls.

While lectures and explanations were utilized by trainers, more emphasis seems to have been given (sensibly, in view of the educational level of the dais) to practical demonstrations, particularly with regard to the anatomy of the female organs, the conduct of delivery using aseptic techniques, and commonly used family planning methods.

In accord with the guidelines issued for the training programme, oral tests were used for evaluation, together with practical tests in the case of subjects such as management of labour, family planning methods, and the testing of urine samples for albumin and sugar.

The effect of training on the dais' subsequent performance was mainly assessed by questioning trainers on their observations, and mothers on their experiences. The findings indicate that:

(a) Contact between dai and health worker increased considerably after training, particularly in connection with the delivery of maternal and child health services such as the registration of pregnant women, antenatal and postnatal care, management of labour, immunizations, care of the newborn, etc.

(b) While the training programme emphasized the use of all the commonly available methods of contraception, except for jelly and foam tablets, and while the dais seemed to be fully aware of them, they were not able to do much to encourage the use of these methods. On the other hand, they appeared to have been relatively successful in motivating women to accept sterilization.

(c) The collection by dais of data on births and deaths showed no improvement as the result of training. However, more careful follow-up studies would be needed to yield valid conclusions on this point.

11. Recommendations

Though the programme envisages the training of popular and experienced dais, it may be necessary to initiate training for young women in the area, who, though they may not be popular and experienced, are willing to undertake training either as a means of entering a traditional occupation or even as preparation for a new one.

While the study indicates overall satisfaction with the availability and use of facilities, training needs have yet to be fully met, particularly in terms of educational aids like fetal dolls, dummies, models, etc. It is of course necessary to make adequate provision for stipends, accommodation, payment for registered deliveries, etc.

Although flexibility should be permitted in choosing the type of training programme and its content, most training should take place outside the classroom, in actual field situations. In cases when this may not be practical, the use of role-play should be emphasized. However experienced the trainers, the available guidelines should be followed in the preparation of lessons and the programming of training. In this connection it may be helpful to provide trainers with a suitable manual.

Training should give more emphasis to promoting up-to-date attitudes to family size, nutrition, and other matters that have a bearing on the overall welfare of the family.

The study makes it clear that the follow-up of training was very poor. The period immediately after training is crucial to its success: trainers have an opportunity of moulding the knowledge, capacities, and practices of the trainee to suit local needs. Because there was no such follow-up, there has not been an appreciable change of attitude with respect to many aspects of maternity practice. In view of the availability of community health guides in the villages, there is scope for improving the delivery of maternal and child health care by coordinating the efforts of dais, community health guides, and health workers. Job specifications listing their tasks should be clearly set out. A simple manual, adapted to the low level of literacy among dais, might be useful.

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AN EVALUATION OF THE TRAINING OF TRADITIONAL BIRTH ATTENDANTS IN SIERRA LEONE AND THEIR PERFORMANCE AFTER TRAINING

Belmont Williams[1] & Fatu Yumkella[2]

1. Introduction

In Sierra Leone, only about 30% of the population can reach the centrally organized health services; the rest depend on healers, native doctors, herbalists, medicine men, other traditional healers, and traditional birth attendants. It is estimated that the traditional birth attendants conduct about 70% of the deliveries in the country, without any assistance whatsoever from scientifically trained nurses, midwives, or doctors.

The traditional birth attendants are very influential women in their respective communities, and it became obvious that they could have an important part to play in the reduction of the mortality and morbidity rates for mothers and children, if given some basic training that would help them to improve their skills and so make them safer in their work. It was felt that if they were persuaded to observe strict cleanliness at all times, particularly at delivery, and took proper care of the umbilical cord at delivery and after, these steps alone would drastically reduce the alarmingly high incidence of neonatal tetanus. Also it was thought that, by encouraging the early detection of abnormalities in pregnancy and labour and early referral of patients with abnormalities to more skilled personnel, training would reduce the high stillbirth, perinatal mortality, and maternal mortality rates.

1.1 Decision to train traditional birth attendants

In 1974 the decision was taken by the Ministry of Health to identify and train practising traditional birth attendants. A 3-week training programme was drawn up by the then Director of Maternal and Child Health Services with the assistance of the two midwifery tutors and the senior specialist paediatrician. UNICEF agreed to provide a stipend for the attendants during the training course, and a simple midwifery kit for each of them at the end of it. Each of them would also receive a certificate.

It was decided that the training programme should be conducted at district level, that no more than 30 traditional birth attendants were to be trained at any one centre at any one time, and that there should be 3-4 teachers for each set of 30. It was also decided that the course should be held at two centres simultaneously twice a year. After considering the farming and harvesting times, March and November were considered the most appropriate months for the course.

Since most of the traditional birth attendants were illiterate, it was decided that the teachers should be professional midwives or nurse/midwives, fluent in the language of the attendants and familiar with the customs and beliefs associated with child-bearing, child-rearing, and other traditional practices. After the teachers had been identified, they were fully briefed and grouped into two sets, one for each of the two major languages (Mende and Temne). The first course was held in November 1974.

1.2 Recruitment of candidates for the training programme

About a month before the training course was scheduled to start, the District Officers of the districts from which candidates were to be drawn for training were informed. The chiefs and headmen were asked to nominate practising traditional birth attendants for the course. The course was also announced over the radio in the various languages. Before an attendant was accepted for training, she was interviewed at the district or provincial headquarters by a panel consisting of a health service sister and nurse/midwives who would be involved in the training and subsequent supervision. The first week of the 3-week training programme was devoted to maternal care and the second to child care and community health, the emphasis throughout being on the practical aspects of the work. The third week was devoted to more practical work and family planning, as well as visits to some homes, health centres, maternal and child health centres, and other places of health interest in the community. At the commencement of the training, a questionnaire was completed for each participant, to provide baseline information about herself and her work. Two very simple questionnaires on the evaluation of the training programme were completed for each participant at the end of the 3-week course.

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1.3 Supervision of traditional birth attendants

Supervision of the trained attendants was difficult from the start. They were expected to report to the nearest district hospital each month to replenish their supplies and, at the same time, to keep in touch with other health service personnel, in particular the health service sister and nurse/midwives who were their supervisors. In the event, numerous problems were encountered, and supervision was always inadequate.

1.4 Evaluation of the training programme

The need to know how the programme was progressing and the impact, if any, made by the trained attendants in their respective communities eventually led to an evaluation of approximately 50% of all trained traditional birth attendants in the country, with the support of UNICEF and WHO. The general objective of the study was to assess the effectiveness of the training programme and the subsequent impact of the trained attendants on community health.

2. Methodology

2.1 Questionnaires

Separate questionnaires were drawn up for the traditional birth attendants themselves, and for community leaders, mothers, trainers, and supervisors.

The questionnaire intended for the attendants themselves reflected the need to determine the suitability and acceptability of the training arrangements (place, duration of training, period and time of training); the knowledge retained by the attendants following their training; their actual performance or practical use of the knowledge imparted during training; their role in the community in terms of recognition and community cooperation and support; their working relationship with other members of the health team; and the support they received from the health team.

The questionnaires addressed to community leaders and mothers were intended to investigate the performance of traditional birth attendants and their acceptance by the community, while the questionnaires for trainers and supervisors consisted of items designed to assess those individual features of the training and supervisory processes that might show where changes should be made in the programme.

Accompanying the questionnaire addressed to a sample of traditional birth attendants was a protocol comprising a set of 19 practical procedures which each attendant was asked to demonstrate to the interviewer. These procedures were designed to simulate actual delivery conditions as closely as was practicable, using midwifery dolls provided by UNICEF.

2.2 Sample design

The total number of traditional birth attendants trained up to December 1980 was 631, unevenly distributed within the districts. With the exception of two districts (Moyamba and Pujehun, where there were 16 and 12 of them respectively) a systematic sample of one attendant in two was drawn from each district. All attendants in the Moyamba and Pujehun Districts were included. This procedure yielded a total of 336 persons, or approximately 53% of all the trained traditional birth attendants in the country. Of these, 313 were actually interviewed, giving a response rate of 93%.

Since only a pilot study on the opinions of mothers and community leaders was planned, they were interviewed on an ad hoc basis. By the end of the survey, 162 mothers and 115 community leaders had been interviewed. Of the 13 trainers, 12 completed questionnaires, as did all the supervisors.

2.3 Selection and training of supervisors and interviewers

Eight field supervisors and 21 interviewers, selected from each of the 12 districts and the Western Area, participated in the training. The supervisors were health service and midwifery sisters, while the interviewers ranged from health service sisters to maternal and child health aides.

The actual training programme, which lasted 8 working days, was organized by the Demographic Research and Training Unit, Fourah Bay College. In order to provide the supervisors and interviewers with realistic field experience, face-to-face interviews with traditional birth attendants not in the selected sample were organized under the supervision of the Unit's staff. Community leaders and mothers were also interviewed.

2.4 Data collection

As well as being supplied with pens and a midwifery doll, each interviewer and supervisor was notified of the dates of local events in the country in order to facilitate the estimation of ages, when necessary.

Data were collected systematically in the villages included in the sample, and the interviewing team returned to the district headquarters only when all traditional birth attendants who could possibly be traced had been interviewed. Additional items such as torches and candles were supplied for use when interviews had to be conducted at night. By the third week of March 1982, interviews had been completed for all districts, bringing the total duration of data collection in the provinces to 2 months.

2.5 Data processing

All data on traditional birth attendants elicited by the questionnaires were edited in the office dealing with the evaluation for consistency and completeness. Responses to questions on antenatal care, postnatal care, family planning, and the use of delivery kits were grouped into those assessing the attendant's knowledge and those assessing her performance. Scores were then assigned to each question under its respective category. Scores were also assigned for practical performance. Each attendant was therefore given an overall knowledge score, a performance score, and a practical performance score. For purposes of comparison, the scores in each category were expressed as percentages of the possible total score.

3. Results

3.1 General characteristics of traditional birth attendants

The religious and educational pattern shown by the 1974 census results for the total population of the country was also apparent in the study: 74% of the traditional birth attendants were Muslims and 85% had not had any formal education.

Over 70% of the attendants were more than 50 years of age, and 18% of them were 70. Most were currently married, and almost all had been married; 44% had had 4-9 children, and 22% had had 10 or more children.

Of the 313 attendants interviewed, 51% had practised for between 10 and 25 years, and 21% for over 25 years. Most of them (75%) claimed to have been taught the craft by close relatives (mothers, grandmothers, aunts, etc.) and 16% to have learnt it from friends and others; 9% said either that they were self-taught or that their craft had been "a gift from God".

All except 4 of the attendants included in the sample were members of the local "Bundo Society", and 35% of the members held significant positions such as "Digba", "Sowae" or "Caretaker" in the society. The Bundo Society is a secret society, and it is customary for girls to be admitted to it at the age of puberty. In many of the various tribes of Sierra Leone, those who have gone through or belong to the society enjoy enhanced prestige.

Many years ago the girls stayed in the "Bundo Bush" for about 3 months, during which period they were taught home care, child care, mothercare, and husband care, and it was the rule that they should be circumcised. At present, the girls remain in the bush for barely

3 weeks and all that seems to be done now is the circumcision, which is performed on girls as young as 5-6 years. To know the details of what happens in the society, one would need to have gone through it.

The Digba and Sowae are the heads or leaders and initiators of the society, and there is a distinct hierarchy among them. Besides being members of the local society, 51% of those in the sample were engaged in alternative occupations. Of these, 41% were either gardeners or farmers, and 10% petty traders. A substantial proportion (38%) were herbalists claiming to cure sick people with traditional remedies.

The above findings confirm the established profile of the traditional birth attendant as an elderly village leader who, having practised for several years, commands considerable influence in the community.

3.2 Training arrangements

There are two separate categories of training arrangements for traditional birth attendants. The majority are trained by the health service. A few are trained by the community health staff of the mission hospital in Serabu in Bumpe Chiefdom in the Bo District. Training is provided by the health service at district headquarter centres each November and March for a continuous period of 3 weeks. The mission hospital staff in Serabu provide 2 hours' basic training each week for 12 weeks in the trainees' own villages or nearby villages, followed by continued supervision and periodic refresher courses.

Responses to questions on the duration and time of training showed that all of the 16 attendants interviewed who had been trained by the mission hospital approved of its arrangements. Of those trained by the health service, most were satisfied with both the duration and time of training. On the other hand, most of them said they would prefer a duration of 4-9 weeks.

3.3 Antenatal care and delivery

Since most traditional birth attendants carry out deliveries in their own or nearby villages only, one would not expect a very high delivery rate. Table 1 shows that 66% of them carried out between 1 and 10 deliveries in the 3 months preceding the interview.

Table 1. Percentage distribution of traditional birth attendants by number of deliveries in the 3 months preceding interview

Number of deliveries	Traditional birth attendants	
	Number	Percentage distribution
0	21	6.71
1 - 5	118	37.70
6 - 10	91	29.07
11 - 15	38	12.14
16 - 20	24	7.67
21 - 25	5	1.60
26 - 30	6	1.92
31+	8	2.55
not stated	2	0.64
Total	313	100.00

An attempt was made to investigate the action taken by traditional birth attendants with regard to breech delivery and retained placenta. The results are given in Tables 2 and 3. More than 50% of them claimed they would refer all breech presentations to hospital, while 40% said they would carry out the delivery.

Table 2. Percentage distribution of traditional birth attendants by the action taken with breech deliveries

Action taken	Traditional birth attendants	
	Number	Percentage distribution
send to hospital immediately	177	56.55
attempt delivery; if difficult, refer to hospital	8	2.55
carry out delivery	125	39.94
do not know	1	0.32
not stated	2	0.64
Total	313	100.00

Table 3. Percentage distribution of traditional birth attendants by action taken when placenta has not been delivered after one hour

Action taken	Traditional birth attendants	
	Number	Percentage distribution
pull at cord	0	0.00
rub uterus	5	1.60
put hand into uterus	3	0.96
tie weight to cord	1	0.32
transfer to hospital	167	62.94
rub uterus, then transfer	14	4.47
tie cord, then transfer	7	2.24
rub uterus, tie weight to cord, then transfer	54	17.25
other combinations	29	9.26
not stated	2	0.96
Total	313	100.00

In the case of a retained placenta, 63% said they would transfer the patient to hospital immediately, while 17% would rub the uterus and tie a weight to the cord before transferring the patient to hospital. About 1% felt they should put their hand into the uterus to withdraw the placenta.

Considering the lack of effective transport to nearby clinics in addition to other economic restraints, the very high percentage recorded for attendants saying they would immediately refer the patients to hospital should be viewed with suspicion. (Undue delay in referring such cases is of course bound to prove fatal.)

Registration of the newborn is one of the major requirements emphasized in the training of traditional birth attendants, and questions about the types of record kept for the newborn were included in the questionnaire. The majority had kept records but of varying content. Over 40% said they recorded date of birth, time of birth, sex, and name of parents, but most had failed to record one or more of these four vital items. Surprisingly, only 23 of them recorded whether the baby had been born alive or was stillborn.

3.4 Postnatal care

The treatment given to newly delivered women is shown in Table 4. Thirty-one per cent of the attendants reported giving some kind of native herb, and 25% reported giving modern drugs in the form of ergometrine, aspirin, or paracetamol. Approximately two-thirds of those questioned claimed to give postnatal care for between 1-2 weeks, 19% for under a week.

Table 4. Percentage distribution of traditional birth attendants by treatment given to newly delivered women

Treatment given	Traditional birth attendants	
	Number	Percentage distribution
no medicine or herb	121	38.66
native herbs only	97	30.99
ergometrine, aspirin, paracetamol, or any other pain-killer	77	24.60
ergometrine and herbs	1	0.32
other	15	4.79
not stated	2	0.64
Total	313	100.00

3.5 Family planning

Although most of the traditional birth attendants said they approved of family planning, their knowledge of modern contraceptive methods was limited. Of the various methods, the pill was best known, followed by prolonged breast-feeding, intrauterine devices, and the condom, in that order (Table 5).

The attendants' "approval" of family planning was not reflected in the number of mothers they had referred in the 6 months preceding interview. In fact, as Table 6 shows, 42% of them had not referred any clients during that period.

3.6 Referral of abnormal cases

When obstetrical problems arise that are beyond the competence or resources of traditional birth attendants, they are expected to refer them to the health service. According to their responses to a specific enquiry about referrals during the past year, 50% had referred 1-5 cases, and 19% had referred 6-10 cases.

Table 5. Percentage of traditional birth attendants who knew each of the various methods couples might use to prevent pregnancy[a]

Method known	Traditional birth attendants	
	Number	Percentage of total number
prolonged breast-feeding	117	37.38
abstinence	75	23.96
pill	212	67.73
condom	78	24.92
intrauterine device	108	34.50
injection	34	10.86
traditional	102	32.59
spermicide	8	2.56
diaphragm	29	9.27
withdrawal	4	1.28
rhythm	1	0.32
none	48	15.34

[a] Total number of traditional birth attendants = 313.

Table 6. Percentage distribution of traditional birth attendants by number of women referred for family planning in the 6 months preceding interview[a]

Number of women referred	Traditional birth attendants	
	Number	Percentage distribution
0	130	41.53
1	16	5.11
2	17	5.43
3	20	6.39
4	23	7.35
5	15	4.79
6	20	6.39
7	5	1.60
8	8	2.56
9	0	0.00
10+	54	17.25
not stated	5	1.60
Total	313	100.00

[a] Total number of traditional birth attendants = 313.

Most traditional birth attendants (68%) said they referred problem cases to the hospital or health centres and not to maternal and child health aides, who were supposed to be rurally based. Since 70% of the attendants expressed the opinion that fares to the nearby health centre or clinic were expensive, one would have expected them to seek the help of maternal and child health aides more often. When further enquiry was made about this, it was revealed, first, that traditional birth attendants are taught to refer difficult cases to hospital or health centres and, secondly, that most maternal and child health aides are utilized in health centres and are not rurally based as had been the original intention.

Antenatal cases with complications and prolonged labour had been the most common reasons for referring cases, as is shown in Table 7. It is encouraging to see that 32% of the attendants had referred pregnant women for immunization purposes.

Table 7. Numbers and percentages of traditional birth attendants who referred various types of case to the hospital in the preceeding year[a]

Type of case	Traditional birth attendants	
	Number	Percentage of total number
antenatal case with complications	188	60.06
prolonged labour	147	46.96
complications after delivery	23	7.34
for immunization	101	32.26
none	59	18.84

[a] Total number of traditional birth attendants = 313.

4. The delivery kit

4.1 Introduction

On completion of their training, every traditional birth attendant trained by the health service is supposed to be supplied with a midwifery kit donated by UNICEF. In fact 20% of all attendants interviewed had not been supplied with kits. This percentage included all those from Serabu who were interviewed since they are not normally supplied with any materials for deliveries. In assessing the delivery kit, the appearance of the kit and its contents were taken into consideration. The majority of traditional birth attendants kept both their kits and the contents clean, but 25% failed to do so.

4.2 Presence of items in kit, description of their use, and actual use during delivery

The presence of the various items supposed to be in the kit and their correct description and use during delivery were investigated. Table 8 shows the results.

The first ten items listed in the table are the regular items in the kit. It appears from the table that these items were present in the kit of virtually every attendant given one. Items like forceps, fetal stethoscope, mucus extractor, and enema syringe were present in relatively fewer kits. The supervisors explained that kits containing fetal stethoscopes were meant for use by maternal and child health aides and should not have been included among those given to traditional birth attendants. The absence of these stethoscopes from certain kits was thus due to the fact that they were not meant to be supplied in the first place. Surprisingly, only just over half the kits contained bottles of eye-drops. A few had lost these bottles through breakage, but the majority had been supplied with penicillin eye ointment instead of eye-drops. In addition to such standard items, some dressings in the form of gauze, lint, pads, and cotton wool were present in the kits of most of the attendants.

When asked about the use of the various items, the birth attendants gave highly competent descriptions for almost all of them. Even in the instances where items had been misplaced, they could still describe their use satisfactorily. On the actual use of the items during delivery, the results indicate that, in practically every case, the presence of an item in the delivery kit does not necessarily mean that it will be used.

Table 8. Items in delivery kit, description of their use, and actual use during delivery[a]

Item	Traditional birth attendants		
	Percentage with item in kit	Percentage correctly describing use of item	Percentage actually using item during delivery
scissors	95.2	97.6	93.3
kidney dish	100.0	92.5	94.4
bowls	98.0	87.7	95.6
towels	85.7	88.5	87.7
soap dish	85.3	97.6	86.1
soap and brush	90.1	89.7	79.4
apron	82.5	92.9	86.1
plastic sheet/mackintosh	86.9	94.8	88.9
cord ligature	83.7	92.9	76.6
bottles for spirit/powder	75.0	84.1	54.8
bottles for eye-drops	53.9	68.3	57.9
forceps	57.9	56.3	13.1
fetal stethoscope	15.5	14.3	13.1
mucus extractor	9.5	8.3	8.3
enema syringe	0.8	0.4	0.4

[a] Total number of traditional birth attendants with delivery kits = 252.

4.3 Views of the traditional birth attendants on the kit

Half of the attendants interviewed claimed that the materials in their kits were not replaced soon enough. Invited to mention other items they would like to see included in the kit, or items already in it that they would like to replace, they responded as shown in Table 9. Dressings were the items most requested, in the form of gauze, lint, cotton wool, or spirit. A sizeable proportion (45%) would like drugs like ergometrine and pain-killers to be included in the kits, whilst 21% said they would like their aprons or mackintoshes replaced.

Table 9. Percentages of traditional birth attendants who referred to various items they would like to see included or replaced in their kit[a]

Item	Traditional birth attendants	
	Number requesting item	Percentage of total number
lamp shades	14	6.70
medicine/drugs	93	44.50
bedding	16	7.66
more dressings	157	75.12
fetal stethoscope	3	1.44
forceps	21	10.05
gloves	6	2.87
enema syringe	13	6.22
mackintosh/apron	44	21.05

[a] Number of traditional birth attendants who made requests = 209.

5. Performance and knowledge scores

5.1 Introduction

As mentioned above, responses to some questions were assigned scores, categorized either as performance scores or as knowledge scores. These were expressed as percentages of the total scores expected. Responses to the questions dealing with practical performance were similarly treated. Since most of the traditional birth attendants included in the sample were not given delivery kits after training, and since this would affect their knowledge and performance scores, it was necessary to analyse results for attendants with delivery kits separately from results for those without them.

5.2 Attendants with delivery kits

Of the 250 traditional birth attendants with delivery kits, 200 scored at least 67% on questions assessing their general performance, while 187 scored at least 66% on questions assessing their knowledge. Thus over 75% of the attendants with delivery kits obtained quite excellent grades on questions dealing with their knowledge and performance. There was a tendency for older attendants to obtain lower scores than younger ones. No relationship was found between score and either length of practice or length of time since training.

5.3 Attendants without delivery kits

The 63 attendants without delivery kits obtained scores relatively lower than those of attendants with delivery kits. Fifty-eight per cent. of the former scored over 50% for general performance. The situation was slightly better for scores assessing knowledge: 83% of those without kits scored over 54%. The main reason for the lower scores is the fact that 16 of the attendants without kits were not trained by the health service, and the questionnaire had been based on the health service training programme.

No relationship was found between score and age, length of practice, or length of time since training.

5.4 Practical performance

Results of tests of the practical performance of traditional birth attendants are given in Table 10. These are encouraging considering that practical demonstrations with dolls were not part of the training programme. Approximately 75% of the attendants scored over 50%.

Table 10. Percentage distribution of traditional birth attendants by practical performance score

Performance score		Traditional birth attendants	
Range	Percentage of maximum score	Number	Percentage distribution
under 20	under 35	30	9.59
20-29	35-52	50	15.97
30-39	53-69	95	30.35
40-49	69-86	93	29.71
75+	87+	45	14.38
Total		313	100.00

6. Working relationships and problems encountered

6.1 Relationship with other health workers

The relationship of traditional birth attendants with other health personnel was considered an important subject of enquiry. Table 11 shows the number of such attendants who claimed to have contacts with different types of health personnel, and, in each case, the numbers claiming good and poor working relationships.

Table 11. Distribution of traditional birth attendants by their relationship with other health workers

	Traditional birth attendants			
Health workers	Number with good working relationship	Number with poor working relationship	Total[a]	Percentage with poor working relationship
maternal and child health aide	159	7	166	4
primary health worker	105	19	124	15
midwifery sister/ staff nurse	100	12	112	11
community health nurses	34	16	50	32
health sister	110	10	120	8
dispenser	38	15	53	28
other traditional birth attendant	61	18	79	23
sanitary worker	8	16	24	67
doctor	6	15	21	71

[a] The total in each case refers to the number of traditional birth attendants claiming to have encountered one or more health workers of the type indicated.

Apparently, hospital-based staff like the community health nurses, the dispenser, and the doctor often had a poor working relationship with traditional birth attendants, whereas with field staff like primary health workers, health service sisters, and maternal and child health aides a poor relationship was relatively unusual. In the case of maternal and child health aides, the fact that the majority are based in the district itself might have encouraged the attendants to conceal their real feelings when referring to the quality of the working relationship; it is generally believed that traditional birth attendants resent maternal and child health aides and regard them as rivals.

6.2 Problems encountered

The questioning of trained traditional birth attendants concluded with an enquiry about the problems they had encountered since training. These are listed in Table 12. The table shows that 86% felt they should be paid for the deliveries they carried out, while 75% complained about the supply of expendable materials.

Table 12. Percentages of traditional birth attendants who experienced certain problems after training[a]

Subject of problem encountered	Traditional birth attendants	
	Number who had encountered problem	Percentage of total
payment	234	74.8
supply of materials	268	85.6
acceptance in community	30	9.6
accommodation for delivery	170	54.3
kit	14	4.5
none	13	4.2

[a] Total number of traditional birth attendants = 313.

7. Opinions of the trainers

Questionnaires were completed by most of the country's 13 trainers of traditional birth attendants. An analysis of the responses revealed that the majority of these trainers were health service sisters and midwives. Most of them were experienced trainers of birth attendants.

7.1 Opinions on training

Of the 13 trainers, 9 had been involved in the selection of traditional birth attendants for training. The health service programme required the following selection criteria to be applied:

- age;
- length of practice;
- position within the community;
- number of deliveries in the 3 months preceding the selection interview;
- knowledge of antenatal care and stages of labour.

Questionnaire responses showed that the trainers considered these criteria to be adequate.

Asked their opinion on the suitability of the training site, some health service trainers cited the following disadvantages of using district headquarters:

- difficulty in accommodating trainees for the period of training;
- difficulty of transport to the training centre;
- classroom conditions unsuitable for training;
- psychological problems created when trainees change from their usual environment.

Opinions were divided about the 3-week training period provided by the health service. Half the health service trainers thought the period should be at least 4 weeks. The trainers from Serabu were entirely satisfied with their 12-week training period.

Concerning the subjects taught, trainers felt that the most difficult were the reproductive system, maternal care, and family planning. The majority felt that the traditional birth attendants found preparation for delivery and the process of delivery relatively easy subjects.

7.2 Opinions on the delivery kit

Half the health service trainers were convinced that the kit was adequate, while the other half felt that some new items should be included or the quantity of old items increased. Trainers with the latter opinion suggested the inclusion of antimalarial drugs, ergometrine, and samples of a contraceptive pill.

7.3 Problems encountered by trainers

Problems were reported by health service trainers in connection with accommodation for themselves and the trainees, transportation to take trainees to the nearest health centre or hospital for practical demonstrations, payment of allowances, and the equipment needed for use during training. The trainers from Serabu considered that the maternal and child health aides did not cooperate sufficiently and did not do enough teaching.

8. Opinions of the supervisors

8.1 Opinions on the acceptance of traditional birth attendants by the community and their working relationships

Three of the four regular supervisors felt that not all traditional birth attendants were accepted or recognized by the communities in which they practised. When they were not accepted, complications were said to arise between them and the dispenser or the maternal and child health aides in the area. The supervisor from Serabu felt their difficulties arose from being sent to villages other than their own. It was suggested that specific job descriptions for all the health personnel involved and more consultation with local leaders to coordinate activities would improve the situation.

Other responses revealed that the relationships of the attendants with other health personnel, such as primary health workers, midwives, health service sisters, and community health nurses were just about satisfactory. Virtually all the regular supervisors rated the relationship as "good" or "satisfactory", rather than "excellent".

8.2 Opinions on referrals

All supervisors agreed that traditional birth attendants do refer cases in need of additional medical care, but differed in their opinions on the frequency of referral. Three felt that problem cases were always referred, but the remaining two, including the supervisor from Serabu, thought this was not so. The reasons given by the supervisor from Serabu for the poor referral of cases were (a) that the attendants were not fully aware of the dangers involved; (b) that referring cases to hospital lost them money from the patients; and (c) that it was difficult to transport patients to the nearest medical centre.

An overall assessment of the frequency of referral for different types of case indicated that only antenatal cases with complications were frequently referred.

8.3 Opinions on the supervision of traditional birth attendants

All 4 regular supervisors were supposed to visit trained traditional birth attendants every month. But only 2 of them claimed that they always or frequent[illegible] these visits. Those responsible for the other 2 areas hardly ever visited the attendants under their supervision. The reason was lack of transport or, when it was available, inadequate supplies of fuel to permit them to cover all the villages where the attendants were located.

Of the 3 supervisors who supervised traditional birth attendants with delivery kits, only 1 stated that expendable materials in the kits were always replaced. However, this was contrary to the opinion expressed by the attendants under her supervision. The attendants supervised in the northern, eastern, and southern provinces rarely had their materials replaced. According to the supervisors, the basic problem, besides that of transport to the villages, was a shortage of materials from the main medical stores in the capital.

8.4 Problems and suggestions for improvement

The supervisor from Serabu said she had no authority over the maternal and child health aides and was not even recognized by them. For the effective running of the birth attendant programme in Serabu, she requested more cooperation from these aides. Suggestions made by supervisors for improvement of the programme in the country as a whole are listed below:

- refresher courses every 2 years;
- regular supervision;
- availability of vehicles for supervision, a sufficient supply of fuel, and a regular supply of dressings, spirit, disinfectant, etc.;
- measures to apprise the maternal and child health aides in Serabu of the authority given to the supervisors there by the health service.

9. Assessment of the opinions of mothers and community leaders

Of the 162 mothers interviewed, 79% were between 20 and 39 years of age, 15% were over 40, and the remaining 12% were under 20. As with the traditional birth attendants, the mothers were predominantly Muslims and two-thirds of them had virtually no education, though 15% claimed to have had some secondary education. Ninety per cent were currently married.

Of the 150 community leaders interviewed, 19 were females. The leaders were fairly mature members of their communities: 61% of them were aged 60 years or more, and only 9% were under 40. The majority (91%) were currently married. Only 37% had had any formal education.

9.1 Mothers' opinions of traditional birth attendants

The mother's responses revealed that over 70% of their children had been delivered by traditional birth attendants, and that 32% had been delivered by trained traditional birth attendants. The majority of mothers interviewed (85%) said they preferred to have their babies delivered by traditional birth attendants because, apart from being easily accessible, they were normally very friendly and kind to mothers during delivery. On the other hand, having a baby delivered in hospital or health centre meant making a lot of expensive preparations beforehand, as well as paying for transport to and from hospital.

Responses given by mothers to questions about their relations with the attendants give the impression that communication between them is excellent. Seventy-five per cent of the mothers claimed that attendants had advised them on the appropriate diet during pregnancy. The percentages of mothers advised to eat various types of food are shown in Table 13.

Table 13. Percentages of mothers advised by traditional birth attendant to eat specific types of food during pregnancy[a]

Type of food	Mothers	
	Number advised to eat type of food	Percentage of total number
green leaves/vegetables	98	60.5
meat/fish/chicken	58	35.8
fruits	77	47.5
eggs/beans/groundnuts	69	42.6
palm oil	57	35.2
rice/cassava/yam and other kinds of carbohydrates	38	23.5

[a] Total number of mothers interviewed = 162.

Although 14% of mothers knew they had to visit the clinic for examination, only 6% specifically mentioned the necessity of vaccinations during pregnancy, and only one claimed to have been referred for family planning services.

9.2 Community leaders' opinions of traditional birth attendants

Seventy-one per cent of community leaders said that all traditional birth attendants in their villages had been trained. Their opinion on the choice of candidates for training and on their acceptance by the community was favourable. This is very likely a genuine opinion, as interviewers were careful not to interview the community leaders responsible for the selection of attendants for training. The respondents all agreed that there had been a recognizable improvement in the attendants' work after training.

Mothers and community leaders were invited to suggest ways of increasing the effectiveness of the work done by traditional birth attendants. For respondents in both categories, payments to attendants, the supply of dressings or drugs, and the provision of some kind of accommodation for delivery were the changes most frequently requested.

10. Conclusions and recommendations

The survey involved almost 50% of all traditional birth attendants trained in the country up to December 1980.

The period and time of training currently used seem convenient for the attendants concerned and should be maintained. But authorities should reconsider the problems encountered by health service trainers over the training site. As most of these problems will not be easily solved in the near future, better incentives should be given to both trainers and trainees to ensure that the objectives of training are achieved.

The majority of traditional birth attendants seem to be giving regular antenatal care to pregnant women and dealing with normal deliveries quite satisfactorily. However trainers from Serabu should intensify training on antenatal care, especially as regards the diet of expectant mothers. A smaller fraction of the attendants give postnatal care, because its significance has not been fully grasped. To most of them, the dropping of the cord implies the end of their services. The fact that new mothers may not all be residing in the same village further adds to the constraints on giving postnatal care for longer periods. It is essential that birth attendants and newly delivered mothers maintain contact for an appreciable period, during which mothers and their husbands can be educated on the advantages of family spacing. It should be emphasized however that the attendants themselves still need to be convinced of the importance of family planning. That they are not completely ignorant of the possible benefits of postponing a birth is suggested by the finding that 33% claimed knowledge of traditional family planning methods. This could well be a conservative percentage, as many might have refrained from disclosing their knowledge. Trainers should stress the advantages of family spacing but should refrain from attempting to persuade traditional birth attendants of the disadvantages of having large families, given that most of the attendants have had fairly large families themselves.

The record-keeping practices of trained traditional birth attendants are still far below the standard desirable. While the high level of illiteracy among them is probably a contributing factor, since it means they have to depend on literate members of the community, the importance of recording details of a birth has yet to be impressed on them strongly enough.

Most of the attendants claim to refer difficult antenatal cases and complications arising before and after delivery to nearby hospitals or health centres. In view of the problem of obtaining suitable means of transport and the risks involved in transferring such patients to nearby health centres, more maternal and child health aides should be trained and posted as close as possible to the villages. The result would be to increase the number of mothers immunized during pregnancy and reduce the number of referrals to hospitals or health centres.

The supply of a midwifery kit to traditional birth attendants after training seems popular with the attendants themselves and with their trainers and supervisors. Those with kits seemed conversant with almost every standard item and used them quite satisfactorily, except for a few who were apprehensive about the scissors and used razor blades instead. If a fetal stethoscope and a mucus extractor are to be included in the kit, more tuition on their use should be given. Drugs should not be included unless sufficient tuition is given on their use to ensure that they are administered correctly; a decision about this should be based on a careful consideration of the advantages and disadvantages involved.

Problems relating to the replenishment of expendable materials in kits should not be considered a major obstacle to good performance. The attendants trained by the mission hospital in Serabu were not supplied with widwifery kits, but could still carry out clean and safe deliveries. Trainers should lay great emphasis on possible substitutes in the event of items being damaged or used up.

Traditional birth attendants appear to be quite popular with mothers and community leaders when they work in their own communities. Attendants' opinions of medical staff were divided: relatively good for field staff, but poor for hospital staff. Those in the latter category should realize the important role of traditional birth attendants and appreciate the advantages of maintaining a cordial and relaxed relationship with them.

The limited nature of the study makes it difficult to assess the extent to which the training of traditional birth attendants contributes to maternal and child health. However, taking all the evidence together, it seems clear that the contribution has been important enough both to justify the resources expended on the training programme and to provide a strong case for embarking on a national programme.

EVALUATION OF A PROGRAMME TO TRAIN TRADITIONAL BIRTH ATTENDANTS IN GHANA

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1. Introduction

In Ghana, as in other developing countries, infant and maternal mortality rates are high. Furthermore, the only care received by a majority of women and children is provided by traditional birth attendants. In recognition of these facts, the Danfa Comprehensive Rural Health and Family Planning Project began training these attendants in 1973.[6] Objectives were set for the upgrading of their knowledge and skills regarding the monitoring of pregnancy, the performance of safe deliveries, and the promotion of maternal and child health and family planning. This paper reports an evaluation, carried out over a 4-year period, which concluded that the training programme had a favourable impact on the midwifery care provided to women in the study area, and that traditional birth attendants worked effectively as motivators of family planning.

2. Background

The Government of Ghana has been concerned for some time with the country's high infant and maternal mortality rates as well as the high birth rate which exacerbates the problem. Half the infant deaths in Ghana are neonatal or perinatal, and most deaths in fertile women are due to complications of pregnancy or childbirth. Pregnant women and newborn infants in rural areas receive minimal care, but the Ministry of Health will not be able to expand and reach them with its modern midwifery services in the foreseeable future. Because 75% of rural births are attended by traditional birth attendants, it seemed wise to explore ways of improving maternal and child health by improving the skills of these attendants and integrating their work with that of the government health service.

The Danfa Comprehensive Rural Health and Family Planning Project[6] in Ghana began training traditional birth attendants in 1973. The following were among the questions to which an answer was sought. Are established traditional birth attendants willing and able to improve their skills? Are they willing and able to learn modern family planning methods and advise their patients effectively? Should all of them be trained or merely those who manage most deliveries and/or show the most promise? What are the costs and benefits of training them? What sort of concurrent education of the community is essential to the success of their training? How should the training programme be evaluated? What sort of ongoing supervision and continuing education should be provided?

Previous papers have discussed the background and rationale for the training effort (1), the attitudes and practices of a sample of TBAs (2), and the design and initial experience of the training programme (3). This paper will concentrate on preliminary efforts at evaluation, supervisory procedures, policy implications, and recommendations based on experience in the Danfa Project to date.

The Danfa Project operated in a rural district covering an area of about 500 km^2, 15-50 km north of Accra. The district was divided into 4 areas (3 study areas and a comparison area). At the time of the study (1974-78), approximately 60 000 people were living in the district's 307 villages. The general fertility rate was 220 per 1000 women aged 15 to 44 years; the birth rate was 48 per 1000 population. The district had a rate of natural population increase of 3.2% annually. Maternal mortality was about 5-7 per 1000 live births, and infant mortality about 100 per 1000 live births. One half of infant deaths occurred during the neonatal period.

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[6] The Danfa Project was a 9-year training, research, and demonstration project undertaken jointly by the Department of Community Health, University of Ghana Medical School, and the School of Public Health, University of California at Los Angeles, and supported in part by the Government of Ghana (USAID Grant AID/CM/aft-IDA-73-14).

In the three study areas of the Project, 237 traditional birth attendants and 26 assistants were registered in 1972. The ratio of attendants to population was about 1:137. Almost half the attendants were males, and only 6% were literate. Their mean age was 62 years, and the average number of years in practice was 23. They performed an average of about 7 deliveries per year; a small number (6%) performed 20 or more deliveries per year. However, the initial registration confirmed that, as a group, they were a major source of health care for women in this rural area of Ghana.

Following extensive discussions with village leaders, a detailed survey of a sample of the traditional birth attendants registered was carried out in 1973. The survey elicited information about their knowledge and practices and about their attitudes toward family planning. Detailed results have been published elsewhere (1). They generally gave correct or neutral advice to their patients. Although many delayed in referring women to the health centre or hospital for complications, most recognized the benefits of early referral of serious problems. Most of them supported family planning, and 68% were interested in improving their midwifery skills.

On the basis of information obtained in the questionnaire survey, a pilot training programme was begun in one of the study areas (Area I). Villages in the area were clustered into four groups in order to make the most efficient use of transport and training personnel. Training began in the first cluster in June of 1973, and the remaining clusters completed the programme in March 1975. Of the 68 traditional birth attendants registered in the area, 57 completed training. Three more attendants joined the training programme later.

The results of the survey questionnaire and the impressions of the Ghanaian nurse-midwife interviewer suggested that these elderly, largely illiterate, birth attendants would probably have a limited capacity for assimilating modern midwifery practices. Therefore limited objectives were set for the programme, with training techniques that required active participation by the trainees. Upon completion of training, attendants were expected to:

(a) recognize pregnancy early and advise and monitor women during the prenatal period;

(b) recognize and refer high-risk women or those with serious complications of pregnancy or delivery;

(c) perform safe deliveries;

(d) practise proper cutting and care of the umbilical cord; and

(e) aid in promoting improved maternal and child health practices and family planning in their villages.

Details of the training programme are published elsewhere (3). The course was organized and coordinated by a senior nurse-midwife and 2 public health nurses. Two physicians affiliated to the Danfa Project served as advisers. The initial course for each cluster consisted of 8 3-hour sessions held every 2 weeks. Lecture, demonstration, and recitation were the main teaching methods employed. While the trainees were not paid for attending, they were provided, at the end of the training programme, with midwifery kits to be periodically renewed by the Ministry of Health. They were also given certificates of completion of the training course.

A community education programme carried on before, during, and after the training programme covered many aspects of health, stressing among other things the advantages to the community of improving the practices of the traditional birth attendants. The benefits outlined included lowered maternal and infant mortality, healthier mothers and children, and the possibility of returning to the custom of having intervals of 2 years between pregnancies. (This was the norm in the old days of polygamy, with community sanctions against the mother and father if the intervals were any shorter.)

Community support for the training of traditional birth attendants was obtained prior to the active recruitment of trainees. The villagers were informed that the attendants were giving their time without pay in order to upgrade their ability to serve the community. At the same time, the content of the training course was described in general terms so that the community would know what to look for in the way of improved skills and services. Most important, community education stressed that the newly trained birth attendants would deserve better remuneration from clients in the community for services rendered. The attendants themselves were made aware of the community education programme in progress as they trained and were not infrequently present in the village audience when general discussions on health education were held.

One further important vehicle for educating the community and enlisting its support was a dramatic presentation staged for the villagers by the trainees at the end of their training. This presentation, which also served as a form of final examination, included simulations of a prenatal examination, labour, and delivery, and a family planning counselling session with a husband and wife. The trainees devoted much time and enthusiasm to preparation and performance, so that the sketches were a means of reinforcing lessons learnt during their training. In fact, performances became major village events with chiefs, village elders, project personnel, and Ministry of Health officials in attendance along with villagers. Each performance culminated with the award of the midwifery kits and certificates of completion of training, thus enhancing its publicity value.

3. Supervision and evaluation methods

The need for supervision, evaluation, and refresher courses was recognized from the outset of the programme. Experience in other countries such as India (A. K. Neumann and J. Bhatia, unpublished observations, 1975) made it clear that, without follow-up, interest in the programme may diminish over time and many traditional birth attendants revert to pre-training habits. Accordingly, supervision and evaluation were given priority in planning the programme.

In virtually all efforts to train primary health care workers for rural areas, supervision, evaluation, and renewal of midwifery kits pose difficult problems. These activities share similar constraints. Shortages of supervisory and/or evaluation personnel and of means of transport preclude easy follow-up in the field. Assessment of the impact of a programme using traditional birth attendants on maternal and infant mortality is particularly hampered by the difficulty of obtaining satisfactory data and by the length of time required. Quality of work is also difficult to measure, since the infrequency of deliveries and poor communications and transport systems make it nearly impossible to observe delivery practices in the field. For these reasons, intermediate measures were used to assess performance in this study.

Evaluation of learning during the training programme was carried out in a rather simple way. (The staff had no prior experience of such a programme, and a review of the literature provided no helpful guidelines.) The following criteria were used to evaluate learning during training:

(a) attendance at 75% (at least) of the training sessions;

(b) participation in class discussions;

(c) recall during informal oral quizzes of material presented at previous sessions;

(d) performance in simulation exercises presented to assembled villagers.

Those who met the four criteria were deemed eligible for the certificate of completion. Furthermore, the application of these criteria helped to suggest which traditional birth attendants might later need additional monitoring by supervisory personnel. However, the view of the trainers was that, although all traditional birth attendants should be permitted to enter and complete the course, follow-up efforts should support only those found to be really interested and regularly active as birth attendants, as opposed to those who delivered only one or two babies a year.

The supervisory personnel of the project decided that a visit to each village cluster about once every 2 months was best. More frequent visiting was too costly; when it was less frequent, the attendants felt the programme was losing interest in them.

During each visit the supervisor examined the record books maintained by the birth attendants, if literate, or by their literate relatives or neighbours, and recorded activities on a summary log sheet. Information was collected on numbers of prenatal visits, deliveries, postpartum visits, complications seen and referred, and family planning acceptors recruited. The midwifery kits were inspected for cleanliness and to verify the number of cord packs utilized. Kits were also renewed at this time. Each attendant was questioned about details of the management of deliveries performed since the last visit of the supervisor, and together they discussed any problems that had arisen since that visit. If possible a recently delivered mother was visited and questioned about the services provided to her by the birth attendant during the prenatal, delivery, and postpartum periods. The mother's room or the delivery area was inspected for cleanliness. The fundus, perineum, and lochia were checked and the newborn child examined as well, particularly from the standpoint of care of the cord.

While follow-up visits to traditional birth attendants and their patients were considered the most valuable methods of evaluation, another opportunity for evaluation came with the periodic refresher classes held every 6-10 months, their primary purpose being to review important skills and procedures and to discuss problems. At the same time, supervisors rated the performance of the birth attendants according to the following nine criteria: attentiveness in training; retention of knowledge; cooperativeness; referral of problem pregnancies; referral of patients for family planning; provision of prenatal care; provision of postnatal care; correct use of cord packs; maintenance of records.

Attendants were rated on a scale of 1 to 4, high scores representing excellent performance. This system provided data which corroborated information gathered by supervisors during field visits (see Table 1).

Table 1. Criteria for evaluating TBAs: Danfa Project 1974-78[a]

Criterion	Score			
	1	2	3	4
Prenatal cases referred to health centre	< 30%	30-49%	50-59%	> 60%
Total annual deliveries performed in village	< 50%	50-59%	60-74%	> 75%
Prenatal patients referred to health centre	<100% (>36 weeks)	< 100% (28-36 weeks)	100%	100%
Total postpartum cases seen in village for 10 days postpartum	< 50%	50-59%	60-74%	>75%
Cord packs accounted for	< 50%	50-59%	60-74%	>75%
Accuracy in maintaining record book	< 60%	60-74%	75-99%	100%
Minimum family planning activities per year	0	advised 1 person	referred 1-2	referred > 2
Refresher course training classes attended (of approximatey 10 held per year)	< 4	4-5	6-7	8-10

[a] These are the most commonly used criteria. Lowest possible score = 1, highest = 4 for each criterion.

In 1974, the Project's registrars of vital events began to collect information on births through a special questionnaire circulated to all households in which a live birth had occurred during the previous 12 months, and this procedure aided in the evaluation effort. Information was obtained concerning place of delivery, person performing the delivery, instrument used to sever the cord, type of cord dressing used, pre- or postpartum care received, maternal or infant problems during or after delivery, and current status of mother and infant (alive or deceased). This information was used to evaluate the work and practices of traditional birth attendants.

The referral records of the family planning programme were also useful in evaluation. During training the traditional birth attendants had been instructed to give cards to patients referred for prenatal, delivery, or postpartum problems or for family planning consultations. The cards served as an additional aid in evaluating the attendants, for they helped determine who had been referring patients. However, since some of the attendants did not remember to give the cards to patients, this system was only of partial value. The family planning team in the area noted an increase in first-time acceptors when the training programme was initiated, an increase that could not be attributed to any other factors. Thus, it was concluded that the traditional birth attendants had succeeded in influencing a group previously unreached.

Finally, a sample cross-check of mothers who had been presumably referred by traditional birth attendants to the health centre for any purpose could be made at any time. This was made possible because all persons in the project area had identification numbers which appeared on all their records.

4. Results of evaluation

The evaluation plan for the training programme was guided by the five major objectives presented earlier. In addition, special attention was given to cost studies to determine the feasibility of the large-scale training and utilization of traditional birth attendants in Ghana. The results presented below cover the periods May 1974-August 1976 and September 1976-December 1978, for 56 attendants trained in Area I. Training in each cluster was completed at different times, and the analyses are based on a total of 2861 trained attendant-months.

The number of reported deliveries performed by the trained traditional birth attendants increased with the number of months in practice following training. From May 1974 the average number of deliveries increased from 3.38 to 5.67 per trained attendant per year of practice after training (an increase of 2.20 per year). During registration, the attendants claimed that they attended an average of about 7 deliveries per year. The discrepancy is probably explained by an overestimate of their own typical levels of activity before training. The proportion of all deliveries performed by the trained attendants also steadily rose - from 11% in 1974 to 29% in 1976 - as the number of trained attendant-months increased. Untrained attendants were handling a decreasing percentage of all deliveries by traditional birth attendants: 30% in 1976 as compared with 65% in 1974. This is, of course, related to the fact that the number of untrained attendants decreased as more became trained. Of the 41% of deliveries not performed by traditional birth attendants, about 15% are carried out at the Danfa Health Centre, usually by a trained midwife, but sometimes by a physician. Another 15% or so are managed at home by the mother herself or by a relative who is not a traditional birth attendant. The rest fall into the category of "other". The figures fluctuate somewhat but the clear trend is to have more deliveries performed by traditional birth attendants who have been trained. Traditional birth attendants continue to deliver the majority of babies born in the area. Moreover, they also see a greater number of prenatal and postpartum patients than does the health centre staff.

Table 2 illustrates levels of activity for traditional birth attendants trained over the 27-month reporting period from May 1974 to August 1976. About 29% managed the majority of the deliveries performed (71%). Another 20% managed about 18% of them.

Table 3 shows that in a subsequent 16-month period (September 1976-December 1978), nearly 60% of the deliveries performed were managed by about 28% of the attendants and over 88% by less than half of them. The data from these two reporting periods indicate that only half the number of trained traditional birth attendants account for approximately 90% of the deliveries managed by all such attendants.

Table 2. Summary of activity of trained traditional birth attendants (TBAs) in Area I, May 1974 to August 1976[a]

Deliveries per TBA	Number of TBAs	Total deliveries	Total prenatal visits	Routine prenatal referral to health centre	Referral for prenatal problem	Referral for post-partum visit	Referral for delivery problem	Recruitment of family planning acceptors
⩾10	16 (28.6%)	298 (71.1%)	523 (69.0%)	410 (53.5%)	14 (58.4%)	141 (71.6%)	24 (49.0%)	95 (55.2%)
5-9	11 (19.6%)	74 (17.6%)	144 (19.0%)	216 (28.2%)	5 (20.8%)	31 (15.7%)	9 (18.4%)	30 (17.5%)
2-4	15 (26.8%)	43 (10.3%)	76 (10.0%)	96 (12.6%)	2 (8.3%)	25 (12.7%)	10 (20.4%)	47 (27.3%)
1	4 (7.1%)	4 (1.0%)	7 (1.0%)	14 (1.8%)	1 (4.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
0	10 (17.9%)	0 (0.0%)	7 (1.0%)	30 (3.9%)	2 (8.3%)	0 (0.0%)	6 (12.2%)	0 (0.0%)
Total	56 (100%)	419 (100%)	757 (100%)	766 (100%)	24 (100%)	197 (100%)	49 (100%)	172 (100%)

[a] Total TBA-months = 1265.

Table 3. Summary of activity of trained traditional birth attendants (TBAs) in Area I, September 1976 to December 1978[a]

Deliveries per TBA	Number of TBAs	Total deliveries	Total prenatal visits	Routine prenatal referral to health centre	Referral for prenatal problem	Referral for post-partum visit	Referral for delivery problem	Recruitment of family planning acceptors
⩾10	16 (28.1%)	203 (59.5%)	425 (61.1%)	424 (59.4%)	10 (71.5%)	190 (61.7%)	4 (80.0%)	38 (55.9%)
5-9	12 (21.1%)	98 (28.7%)	200 (28.8%)	220 (30.8%)	2 (14.3%)	78 (25.3%)	1 (20.0%)	18 (26.5%)
2-4	15 (26.3%)	36 (10.6%)	58 (8.3%)	54 (7.6%)	1 (7.1%)	36 (11.7%)	0 (0.0%)	10 (14.7%)
1	4 (7.0%)	4 (1.2%)	6 (0.9%)	10 (1.4%)	1 (7.1%)	4 (1.3%)	0 (0.0%)	2 (2.9%)
0	10 (17.5%)	0 (0.0%)	6 (0.9%)	6 (0.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	57 (100%)	341 (100%)	695 (100%)	714 (100%)	14 (100%)	308 (100%)	5 (100%)	68 (100%)

[a] Total TBA-months = 1596.

The following paragraphs present the achievements of the programme in relation to the training objectives specified above.

4.1 Objective 1: prenatal monitoring

Prior to the implementation of the training programme, very few patients were referred by traditional birth attendants to the health centre for prenatal visits. Of the attendants interviewed by questionnaire prior to training, 75% reported that they never recommended prenatal visits. After training, those in Area I averaged just over 2 prenatal visits per delivery. Of pregnant females in the area, 91% were referred by a traditional birth attendant to the health centre for at least one prenatal visit, as prescribed in the training course.

4.2 Objective 2: recognition and referral of high-risk women

According to the referral cards distributed to the attendants during their training, supervisory visits, and the attendants' own reports, they now refer to the health centre about 4% of their patients for delivery and 1.5% of postpartum patients for treatment of problems or complications.

4.3 Objectives 3 and 4: safe deliveries and proper cord management

As mentioned above, intermediate indicators of performance were used to evaluate knowledge and practice of new skills, since it is rare to have the opportunity of observing traditional birth attendants performing actual deliveries. Part of the evaluation was based on ratings given by the supervisor/instructor according to performance during training and in refresher courses, supplemented by mothers' reports and supervisors' reports from field visits.

Scores ranged from 14 to 32 (the highest possible score) with a median score of 25. Between the top and bottom quartile of scores there was a significant association between sex and score ($\chi^2 = 7.02$, $\underline{P} = 0.001$), with females scoring higher than males. Comparison of the top and bottom halves of the scores did not reveal a significant association between sex and score.

Age and score were uncorrelated, and there was no significant difference in mean age between the top and bottom halves of the scores.

Quantitative data were available on the care and treatment of the umbilical cord. Prior to training, most traditional birth attendants reported using a new (but unsterilized) razor blade to cut the cord. Others used old blades, knives, scissors, and broken glass, often unwashed before use. Since training, there has been a steady increase in the reported use of the sterilized blades provided in the midwifery kit: at 42% of births in 1974 compared with 68% in 1976.

Herbs and salt were the most common cord dressings prior to training, followed by pulverized shells, talcum powder, clay, and palm kernel oil. Gentian violet was provided in the kit for cord-dressing and there was a steady increase in its use as the number of trained attendant-months increased. According to mothers' reports, gentian violet was used in half of all deliveries attended by trained traditional birth attendants.

During the study period, there were 426 cord pack replacements (about 4.03 per trained attendant per year). In 1976 there was a cord pack replacement for almost every delivery: a most encouraging finding. (A cord pack contained a sterilized blade, a gauze, dressing, and ligatures.)

4.4 Objective 5: family planning

Since 1975, the number of women reportedly referred by trained traditional birth attendants for family planning remained at an average of about 1.5 referrals per attendant per year, as documented by the referral cards. Since the family planning referral cards were not being consistently used, it was not possible to determine which attendants referred the women for family planning. However, if the reports were accurate (and in fact it was felt that they understated the real position), referrals by traditional birth attendants accounted for at least 34% of all new female acceptors in Area I in 1976. Before efforts to involve traditional birth attendants in family planning were started, Area I already had a good programme of contraceptive services, which had been made possible by a community-based health education programme and the availability of primary health care services. Good rates of contraception acceptance and continuity had been observed (4). The advice and motivation provided by traditional birth attendants constituted an additional input which seems to have contributed to even higher rates.

5. Cost

The costs of the programme for 56 traditional birth attendants in Area I are shown in Table 4. According to the special questionnaire on births used in the registration of vital events, 30% of deliveries in Area I in 1976 were performed by trained traditional birth attendants. However, reports to the health centre supervisor by trained attendants claimed the delivery of 270 infants during the same period, or approximately 45% of all deliveries in the area. Depending on which figure is correct, and discounting the one-off start-up costs, the estimated programme cost per birth for this area was US$ 4.04 or US$ 6.07, including the cost of promoting contraception. Whichever figure is used, the cost was very reasonable.

Table 4. Cost of traditional birth attendant programme in Area I

Start-up costs		
Identification of traditional birth attendants/registration:		
16 days in field with 2 visits to 32 villages with traditional birth attendants (1 initial visit to explain registration and 1 subsequent visit to register attendants)		
Vehicle: 96 km/day for 16 days at $ 0.2/km		$ 307
Personnel (family planning assistant): 16 days x $ 3/day		48
	Subtotal:	355
Training		
8 days (8 sessions of 3 hours each)		
Vehicle (to pick up trainees): 128 km/day for 8 days at $ 0.2/km		205
2nd vehicle to transport instructor: 80 km/day for 8 days at $ 0.2/km		128
Personnel: instructor (public health nurse) 8 days preparation + 8 days lecture = 16 days at $ 9/day		144
	Subtotal:	477
Midwifery kits		
56 kits (1 per attendant) x $ 10 each	Subtotal:	560
	Total start-up cost:	$ 1392
Annual running costs		
Transport for supervision		$ 800
Salaries for supervisory personnel		225
Cord pack replacements		67
	Total annual running cost:	$ 1092

The field supervisor thought it highly likely that trained traditional birth attendants averted at least two or three maternal deaths in the area each year by virtue of their new knowledge and sensitization to the complications of pregnancy and by the more frequent referral of such cases to the health centre and hospital. While no statistical information is available regarding the contribution of the training of traditional birth attendants to the reduction of morbidity and mortality, all observers in Ghana felt that the programme was cost-effective. The Director of Medical Services subsequently ordered that the training of traditional birth attendants be introduced in all health regions as facilities, staff, transport, and other constraining factors permitted.

6. Discussion

These data show that the Danfa Project's training programme for traditional birth attendants had a favourable impact on the midwifery care given to women in the study area. Particularly encouraging were the findings that the vast majority of women seen by the trained attendants were referred to the local health centre for at least one prenatal visit, and that the use of sterile cord packs by attendants was increasing. The latter development should help decrease the incidence of neonatal tetanus.

In recent years, the health centre in the area has accounted for an estimated 10-17% of deliveries. The number fluctuates from year to year. There is no evidence indicative of a major shift in mothers' choices away from the health centre to the trained traditional birth attendant. Several qualified local observers found that more women were now seeking the more "sophisticated" hospital setting for delivery, probably partly as a result of the Danfa Project's health education programme. What motivates pregnant women in Area I to go to a given person or place for delivery could be the subject of an interesting study. Preliminary evidence suggests that the personality of midwives, money, whether relatives reside near the hospital, and education are all factors.

The evaluation has several implications that may have a bearing on similar training efforts in other countries.

6.1 Cost

While start-up costs, including development of the training course and manuals, and the costs of identifying and interviewing traditional birth attendants, were high, they were, of course, one-off and self-limiting. This particular programme relied on public health nurses experienced in community work to organize the initial activities, but midwives are more readily available and less costly in Ghana and could be used as supervisors, and possibly as trainers, once the course had been refined and standardized. The possibility of using the Danfa Project's health education assistants is being explored. These are multipurpose workers with general training in health education, sanitation, and community development, who could provide appropriate supervision if given extra training. Or health centre outreach workers could add the supervision of traditional birth attendants to their activities. Combining the training and supervision of birth attendants with other village-based health programmes would also help reduce transport costs.

Given the scarcity of resources, a policy of training and supervising only the most active and most accessible traditional birth attendants may also prove the most cost-effective. Any attendant interested in the programme should be admitted because the incremental costs of training a few more are almost zero. Even the marginally interested may learn something, and acceptance of everyone avoids public relations problems. However, the costs of transport and personnel could be markedly reduced if follow-ups were limited to the busiest traditional birth attendants, whose activities would have the greatest quantitative impact in the area.

6.2 Village participation

Villagers can and should be encouraged to support the training of traditional birth attendants. In the programme under discussion, strenuous efforts were made from the outset to establish rapport with village chiefs and traditional healers, as well as with ordinary villagers, to brief them on the purpose and content of the programme, and to get them to help identify traditional birth attendants. Villagers were invited to attend the graduation ceremony for newly trained attendants. Consequently, in some cases villagers were willing to pay up to 50% more for the services of traditional birth attendants than they had been paying prior to the implementation of the training programme. In programmes in other countries which did not incorporate community preparation and involvement in the training, it was found that villagers often remained unaware and unappreciative of the traditional birth attendant's new skills (5,6,7,8) and consequently saw no justification for increasing their remuneration, which did nothing to enhance the attendants' motivation to practise newly acquired skills.

6.3 Training methods

Training should focus on simple, practical demonstration and role-playing. If possible, trainees should participate in several normal deliveries under the supervision of the instructor. This would require them to be taken to a hospital with an active and cooperative obstetrical service. This is being done in some areas where the basic Danfa approach is being followed.

6.4 Evaluation methods

The Danfa Project's evaluation scheme relied on traditional birth attendants' record books, supervisor assessment, referral cards, reports by the attendants themselves, and reports by mothers. Additional practical methods could be helpful in assessing the quality of care. The supervisor could observe the traditional birth attendant conducting prenatal, postpartum, and family planning consultations arranged to coincide with the supervisor's field visit. The supervisor could also observe the attendant delivering a baby in the health centre or hospital. Simple check-lists could be used to assess performance. Such evaluation measures would be more costly than those currently in use. Comparative studies and careful cost analysis would have to be carried out to determine if such additional effort was warranted.

Both the practice of traditional midwifery and the local health service structure may vary from region to region or from country to country. One cannot generalize from the Danfa experience without modification and adaptation to local conditions. It may be true, however, that many developing countries facing rural health problems similar to Ghana's may benefit from linking the private, indigenous health sector to that of the government through training programmes such as the one reported here. In this example, the public sector upgraded private sector elements, provided free supplies (cord packs), established in-service training, and set minimum standards for quality of care.

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AN EVALUATION OF THE TRAINING OF *LET-THES* IN BURMA

Daw Tin Tin Hmun[1]

1. Introduction

Traditional birth attendants (known as *let-thes*) have existed in Burma from time immemorial. Today, with or without legal permission, they continue to attend births. The importance of traditional birth attendants in many countries is such that they are estimated to deliver most of the world's babies. They are found in almost every village and in many urban neighbourhoods in Asia, Africa, and South America and are about the only source of assistance for maternal and child care needs in many of the remoter villages. In the past, national health authorities and health professionals tended to frown upon, if not actively discourage, the practice of midwifery by traditional birth attendants, ignoring the fact that, all too often, they are the only option available to underserved communities. Increasingly, however, as the gap widens between the people's health care needs and the resources available to meet those needs, they are being perceived as untapped resources, which, with a certain amount of training, can help win the battle against high rates of population growth and their corollary, i.e., high rates of maternal and infant mortality.

In 1978 a pilot programme for the training of *let-thes* was started in two townships in Rangoon Division to investigate the possibility of improving their contribution to mother and child care, through simple, informal teaching and continuing guidance by health service midwives. In the period 1980-82, the training programme for *let-thes* was extended to 19 townships with the assistance of the US Agency for International Development, and a total of 3000 *let-thes* were trained. They are now being trained at the rate of 3000 per annum in 147 townships. This paper deals with a study undertaken in one township to determine the effects of the programme on *let-thes* by measuring their knowledge, attitudes, and practices before and after training.

2. Methodology

Training began in October 1981 with a 6-day intensive course, which was followed by once-a-week training for a period of 24 weeks, ending in January 1982. Changes in the *let-thes'* knowledge were measured by analysing their responses to test questions presented before training and again in April 1983, 15 months after training ended. For the measurement of changes in their practices, both their own reports and those of mothers who had used their services were taken into account. To identify these mothers, a cross-sectional survey of 10 022 households in the 44 villages in Syriam township (close to Rangoon) was undertaken before and after the training period. Interviews were held with mothers who had used the services of *let-thes* or auxiliary midwives during the preceding year. Interviews were also conducted with *let-thes* and auxiliary midwives before and after training. There were 59 *let-thes*, 6 auxiliary midwives, and 12 health service midwives in the township.

2.1 Knowledge

Two subjects were used to assess changes in the knowledge of *let-thes*: risk factors, and mother and child care.

Table 1 shows the change in the percentage of let-thes correctly identifying each of 20 risk factors. Apparently it was considerably increased by training.

The effect of training on the *let-thes'* knowledge of mother and child care was assessed by the use of questions on such subjects as methods of resuscitating a newborn child, the advisability of starting breast-feeding immediately after delivery, and the immunizations a mother should be advised to have. Again, the results (Table 2) showed that training appeared to have had a considerable effect on the *let-thes'* knowledge.

2.2 Practice, as reported by let-thes

Table 3 shows the percentage of households reporting the presence of cases of each of the risk factors listed in Table 1, and the percentage reporting referral for that factor before and after training of the *let-thes*.

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Table 1. Percentage of let-thes giving correct answer to each of a series of questions about risk factors, before and after training

Risk factors	Pre-training survey	Post-training survey
	(%)	(%)
age of mother (below 16 years, above 35 years)	30.5	91.5
parity - 1	13.5	81.4
5	1.7	76.3
6 and above	18.6	78.0
short height of mother	18.6	88.1
low weight of mother	18.6	81.4
abdomen too large or too small for date	20.3	83.1
Past history of expectant mother		
bleeding at any time during a previous pregnancy	23.7	81.4
previous abortions, stillbirths, retained placenta	20.3	81.4
abdominal operation (mother with abdominal scar)	23.7	83.1
previous instrumental delivery	8.4	83.1
Present condition of the mother and problems encountered during pregnancy and during delivery		
presence of systemic diseases such as tuberculosis, malaria, or hepatitis, or prolonged illness	11.8	83.1
vaginal bleeding at any stage of pregnancy	15.2	83.1
persistent vomiting after first 3 months or persistent headache, or swelling of any part of the body at any time	18.6	89.8
pallor/anaemia	44.0	86.4
disappearance of fetal movement	15.2	86.4
prolonged labour	11.8	83.1
abnormal presentation	25.4	83.1
obstetric emergency	3.4	76.3
others	13.5	0.0

Table 2. Percentage distributions of let-thes' responses to questions, before and after training, about care of mother and child

Questions	Percentage distribution	
	Pre-training	Post-training
1. How would you resuscitate a newborn child?		
- mouth-to-mouth resuscitation	13.8	100.0
- spread salt over placenta	10.3	0.0
- massage the placenta	8.6	0.0
- wash the placenta	56.0	0.0
- no method known	11.3	0.0
	100.0	100.0
2. Should a mother eat normally, more than normal, or less than normal during pregnancy?		
- more than normal	6.8	83.1
- normally	74.6	16.9
- less than normal	18.6	0.0
	100.0	100.0
3. What foods should a mother avoid during pregnancy?		
- meat	7.6	0.0
- fish	4.6	0.0
- eggs	1.5	0.0
- pulses	3.0	0.0
- green vegetables	13.3	0.0
- hot foods	58.0	0.0
- others	1.7	98.2
- don't know	10.3	1.8
	100.0	100.0
4. Do you advise mothers to breast-feed immediately after delivery?		
- yes	39.0	100.0
- no	61.0	0.0
	100.0	100.0
5. Do you advise mothers to immunize the newborn?		
- yes	33.9	100.0
- no	66.1	0.0
	100.0	100.0
6. Do you advise mothers to be immunized?		
- yes	62.7	100.0
- no	37.3	0.0
	100.0	100.0

Table 3. Percentage of households reporting the presence of each of various factors and percentage reporting referral for that factor, before and after training of let-thes[a]

Risk factors	Pre-training survey		Post-training survey	
	Present	Referred	Present	Referred
age of mother (below 16 years, above 35 years)	10.4	10.5	11.5	40.9
parity - 1	14.0	5.6	15.5	35.7
5	15.3	1.0	15.9	22.8
6 and above	9.3	12.0	10.9	43.9
short height of mother	3.5	12.5	2.4	44.4
low weight of mother	2.8	11.8	1.8	30.0
abdomen too large or too small for date	10.5	15.3	9.4	53.7
Past history of expectant mother				
bleeding at any time during a previous pregnancy	1.9	20.8	2.8	73.3
previous abortions, stillbirths, retained placenta	7.2	19.8	7.0	23.7
abdominal operation (mother with abdominal scar)	0.3	22.5	0.4	0.0
previous instrumental delivery	0.4	7.0	0.0	0.0
Present condition of the mother and problems encountered during pregnancy and during delivery				
presence of systemic diseases such as tuberculosis, malaria, or hepatitis, or prolonged illness	1.5	8.3	1.3	40.0
vaginal bleeding at any stage of pregnancy	15.0	11.3	1.5	37.5
persistent vomiting after first 3 months or swelling of any part of the body at any time	27.3	13.6	29.0	61.8
pallor/anaemia	32.7	24.8	31.6	81.6
disappearance of fetal movement	1.9	10.2	2.2	20.0
prolonged labour	3.9	8.3	4.6	28.0
abnormal presentation	0.8	18.3	0.7	25.0
obstetric emergency	1.1	1.8	0.9	25.0
others	0.3	9.6	0.0	0.0

[a] The survey covered a total of 10 022 houses.

3. Conclusions

It seems clear from the results that the training programme for *let-thes* in Syriam township was successful. Apparently the programme was able to effect a striking transformation in the knowledge and practices of most trainees, although, predictably, changes in the former were greater than changes in the latter. The results seem all the more encouraging when it is recalled that the evaluation was undertaken 15 months after the training programme had ended. Evidently the *let-thes* had been able to retain what they had been taught. Probably one reason was the form in which training had been given: once-a-week sessions over 6 months, instead of a single block programme or a block programme combined with infrequent refresher training.

The results of the evaluation may justify a reconsideration of the plan to phase out the *let-thes*, replacing them with auxiliary midwives. The trained *let-the* appears to be at least as skilful as an auxiliary midwife and is much more experienced. On the other hand, the *let-thes* are much older, and it may be that the recruitment of newcomers to the occupation is declining, in which case the *let-thes* will disappear naturally. However, there seems no good reason to expedite their disappearance by recruiting auxiliary midwives at an unnecessarily high rate. Given the country's falling birth rate combined with the continued recruitment of auxiliary midwives and the training of *let-thes*, there is a risk of the number of capable midwives available far exceeding the number needed.

Finally, it must be stressed that the results reported above apply to one township only, Syriam. Evaluations of training programmes conducted in other townships might well yield different results.

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BIRTH AND TRADITION IN THE PHILIPPINES

D. M. Recio[1]

1. Introduction

In the Philippines and many other countries of the Western Pacific Region, traditional birth attendants are very much in evidence. Their services are sought as early as the first trimester of pregnancy (1,2) and retained until after the baby is born. In some areas of the Philippines, they provide postpartum massage for 2-3 weeks.

The term used to identify the traditional birth attendant varies according to ethnic group. The Tagalogs call her a hilot (literally meaning "massage"); the Sulods a partira or baylan; and the Tausugs a panday. In general, she performs the same activities wherever she is found in the Philippines and, in all probability, in other areas of the Western Pacific Region.

A study of 90 traditional birth attendants in the province of Mindoro and 123 in the province of Marinduque shows that they are typically women in their middle fifties, most of them married. Almost all of them live in rural villages called barrios.

As a rule, the traditional birth attendant starts training at the age of thirty. This training can take various forms. Of those interviewed in Mindoro, 54% learned the job by observing a practising birth attendant, usually a relative. Thirty-six per cent. were self-taught. Another 2% claimed to be "gifted" and to be answering the call of some supernatural being, such as a deceased relative who had been a herbalist or a birth attendant. Those who have undergone formal training are entitled to be called registered birth attendants; otherwise they are referred to as colorums.

The study of traditional birth attendants carried out in Mindoro and Bay, Laguna, gives some indication of their experience and education. Of those interviewed, 39% claimed to have had 11 or more years' experience, and 7% to have had 31 or more years' experience. Most of them are not highly educated, as the following figures tell: 32% never went to school; 65% finished elementary education; 2% attended high school; 80% could read and write.

In Bay and in Mindoro, a traditional birth attendant is considered highly qualified if she has had long experience in attending deliveries and possesses the following qualities: conscientiousness, regularity in visiting mother and child, cleanliness and orderliness, patience, warmth, and understanding. She is expected to know her limitations and to be alert in case complications arise. The older attendants are often those most respected by the people, and they usually live in the vicinity of their clients. They provide both prenatal and postnatal care, visit their clients daily and help in the house. They are paid in money or in kind for their services.

There is quite a close personal relationship between birth attendant and client. The possible reasons for this include: (a) similarity in educational background which facilitates communication betweeen them; (b) long acquaintance going back to their early years; (c) the emotional support the attendant gives during the lying-in period and the domestic services she provides; and (d) belief (often without foundation) in their kinship, as is common in rural settings. Similarity of religious background also helps to strengthen the personal relationship between attendant and client, as well as enabling the birth attendant, in the role of holistic healer, to use mystic and religious practices.

The attendant exercises some kind of authority over the families she serves, particularly when she is related to them by ties of kinship.

When the time for delivery comes, many mothers prefer to call the traditional birth attendant rather than the doctor or nurse, because with the attendant they are assured of privacy. This concern for privacy, which is in keeping with the Filipino's sense of modesty, is also the main reason why mothers in rural areas prefer not to give birth in a hospital.

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Moreover, they find going to the hospital too expensive and inconvenient: expensive because medicines are always prescribed, even for normal deliveries; inconvenient because they have to find someone to look after the family, especially the children, in their absence.

2. Ethno-obstetrical knowledge

The following section encompasses the whole field of pregnancy: labour and delivery, care of the placenta and the umbilical cord, and postpartum care. Each subject is subdivided, and the rituals peculiar to each phase of the cycle are described. In each instance, the beliefs and practices of Philippine societies are reviewed first and then, where data are available, those of other societies in the Western Pacific Region. Java and the Andaman Islands are included.

2.1 Conception and pregnancy

The practice of seeking the help of the traditional birth attendant as early as the first trimester of pregnancy should be encouraged. If she can be equipped to offer wise counsel on diet early in pregnancy, the result should be a reduction of anaemia and vitamin A deficiency. The practice by the attendant of bungkal or prenatal massage (3,4,5,6,7,8) in the abdominal area may be tolerated, if not strenuous, since massage promotes blood circulation and gives a measure of comfort to the pregnant woman, who sometimes continues to work in the ricefields. The daily bath prescribed for the pregnant woman (2,5,7,9) is definitely advantageous, because of the increased blood circulation and the cooling effect, whereas the abdominal binder or bigkis prescribed to the Tinguians and the Tagalogs (6,10,11) obviously deters circulation, if applied tightly. Pregnancy cravings for foods not usually eaten could help improve appetite and need not be totally discouraged. In addition to the additional nutrients provided, the family's indulgence of the pregnant woman (indulgence which she ordinarily does not receive) may enhance her sense of well-being.

2.2 Labour and delivery

While labour and delivery seem such commonplace processes, they can be fraught with risks and complications for the woman involved. Haemorrhage is still one of the leading causes of maternal deaths in the Philippines. Pre-eclampsia and post-eclampsia are also common enough to cause concern. However, such complications are considered preventable, given adequate prenatal care. Since the traditional birth attendant is the service provider preferred by women in the rural areas (1,2,3,5,6,7,8,12,13,14,15), she should be given additional knowledge about these conditions and trained in their prevention. Moreover, the high proportion of deliveries at home (91% according to a recent national survey (12)), often attended by the traditional birth attendant or health service midwife, implies that training in the management of obstetrical emergencies should be given. A national survey of pregnant women in the Philippines in 1978 revealed that 82-86% were anaemic (16). Anaemia and poor nutritional status due to dietary proscription are linked, as are anaemia and haemorrhage. This vicious circle should be explained to traditional birth attendants.

Massage of parts of the body other than the abdomen could be encouraged. But massage as practised by hilots to reposition the fetus, or to deal with bleeding and abdominal pain (2,5,7,8,15,17), can cause abortion, premature separation of the placenta, and/or bleeding. Acupressure might, on the other hand, be studied as a substitute in order to counteract bleeding/haemorrhage resulting from strenuous manipulation of the abdominal area. The principle behind acupressure is similar to that behind acupuncture.

Certain rituals designed to avoid threats to successful pregnancy, such as the manilom and yabyab among the Kalingas (18), the patalag-kaet and mahikawaen among the Sulods (5), the pagbuhat (4) of the Tausugs, the habok in Mindanao (19), and the slametan in Java (20), while not obviously beneficial, can serve the purpose of providing the pregnant woman with the support and attention of close relatives.

Sometimes a special category of relative plays a useful role in delivery. Among the Visayans, the mother-in-law assists the traditional birth attendant during delivery (5,15). The Sulod mother is expected to stay with her pregnant daughter until the birth of the child (6). The Kalinga mother assists in the cutting of the cord and in giving the first bath to her newly born grandchild (18). The parents of both mother and father attend the delivery of Tausug children (4,17).

During delivery, many different positions are used to make it easier for both the mother and the traditional birth attendant. The supine position is preferred by many attendants, who believe that it increases the blood-flow and facilitates delivery. In addition it affords privacy and protection from draughts and cold air (5,11,15,21,22). But in Marinduque (1) and among the Tinguian (10) the semi-erect position and the kneeling position, respectively, are preferred. The Manus (13) mother squats, while the Andamanese and the Tikopia (7) deliver in sitting positions. Each of these positions has obvious advantages, and birth attendants and mothers have so adapted to them that to alter them could pose difficulties. Certain taboos and prohibitions, seemingly harmless but intended to prevent complications in childbirth, often contribute to anxiety and fear. These include: not living in the same house with another pregnant woman; not sitting in doorways; the husband not acting as sponsor in baptism; not delivering the baby in a new house. In addition, there are some dietary proscriptions such as one against eating twin bananas, the purpose of which is to avoid twinning (5,19,21,23).

2.3 Expulsion and disposal of the placenta

How the placenta is disposed of is believed to affect the child's future or its physical constitution. To many parents and traditional birth attendants, the manner of its disposal can signify either good or evil for the child and the parents, for life. In the Philippines, where family solidarity is an important value, the placenta is regarded as a symbol of the precious bond or link, however weak, between the mother or family and the child. Moreover, it is believed that improper disposal of the placenta may be a source of illness brought about by evil spirits.

It is not surprising, therefore, that many rituals, practices, and precautions have evolved in connection with the disposal of the placenta. Some Mindanao groups (4,17,19,24,25) take great pains to bury the placenta where no evil spirits can trace it. Burying is not the only means of concealment. The placenta can be hidden in a bamboo tube, covered with ashes to keep it from smelling, and suspended outside the house or from the branch of a tall tree. Its function is to drive away evil spirits who would otherwise cause illness in the child. Disposal must be on family premises so that the child will remain close to the family.

For the Bukidnons (19) the disposal of the placenta has a different significance. They are careful not to throw it far away, since they believe that this will make the child a cry-baby. The Tinguians, on the other hand, place the afterbirth in a jar and cover it with bamboo leaves to ensure that the child will have a strong constitution when he grows up. The Filipinos have their own measures for taking care of the threat presented by the delayed expulsion of the placenta. One such measure is to massage the abdomen, another is to press the lower abdomen with a cold flat-iron. The first of these measures is an appropriate one, medically speaking, but the second seems to be of questionable value. Giving the very sour juice of the balimbing fruit or applying a poultice made of pandakaki leaves on the lower abdomen are some of the remedies resorted to for expelling the placenta in Marinduque.

2.4 The umbilical cord: cutting and disposal

Until recently, many newborn babies died from tetanus neonatorum. Since many of the births took place at home and the birth attendants did not apply proper aseptic techniques, the technique used to cut the cord was blamed. The use of "any sharp instrument" without benefit of sterilization was discouraged. Unfortunately, parents and traditional birth attendants attach more importance to the symbolic aspects of the cord and its treatment. They believe its length and the manner in which it is cut and disposed of signify health or illness, even death, and determine the child's character traits.

Beliefs about the umbilical cord are sometimes confusing and contradictory. For example, people in Marinduque believe that a child whose mouth is touched by the cord will live a hand-to-mouth existence. This belief is contradicted by another which encourages the practice of brushing the cord against the lips of the child to ensure that it will have red lips. Another belief relates the span of the child's life to the length of the cord when cut. It is believed that the baby will have a short life if the cord is cut too short.

The instruments used to cut the umbilical cord after the expulsion of the placenta include scissors, bamboo slicers, razors, and knives (2,5,8,13,19,26,27,28). Small wonder, therefore, that tetanus neonatorum has not been wiped out.

The effects of treating the cord stump with ashes and coconut oil (2,11), scrapings from coconut shells (4,5,26,28), talcum powder, dried leaves (27), tobacco ash, and ginger have not been studied. The use of the bigkis should also be discouraged since it helps create an anaerobic condition encouraging the survival of some very harmful germs.

2.5 Postpartum care

A great many proscriptions and prescriptions are associated with the postpartum period, when the woman becomes the object of a great deal of attention. The idea seems to be that the period after delivery is hazardous, and the woman must be helped to regain her strength.

2.5.1 Dietary proscriptions

The concern for the mother's well-being during the postpartum period is evident in the proscriptions regarding her diet, which is believed to affect the baby's well-being for as long as it is breast-fed.

When eaten by the mother, eggplants, calamansi (a citrus fruit), mabolo fruit, sugar cane, shoots, pineapple, and mango are believed to cause epigastric pain (11) and even debility (10). Except for eggplants, these are citrus fruits and contain vitamin C. On the other hand, citrus fruits are proscribed as cold foods, perhaps because it is believed that the mother who has just gone through childbirth needs to be kept warm and must not be exposed to anything cold.

Protein-rich foods such as chicken and fish are forbidden among postpartum Tinguian (10) mothers. The only plausible explanation that may be advanced is that they can be allergenic. In many ethnic groups, allergy has only recently been recognized as a medical phenomenon. In fact, the word "allergy" has been borrowed by the Filipinos in the absence of a local equivalent.

The fact that haemostatic agents - notably ginger tea (valayvayan) - are given orally for three days to the newly delivered Ivatan implies that bleeding occurs (22). Since postpartum haemorrhage accounts for a relatively high proportion of perinatal deaths, a survey of haemostatic agents derived from plants would be of value in the Philippines.

2.5.2 Limitation of physical activity, etc.

Generally speaking, the postpartum period is one of reduced physical activity. Very few mothers get up on the day of delivery. Of 136 mothers surveyed in Bay, Laguna, 37% were walking on the day after delivery, 37% on the second and third day, 7% at the end of the first week, and 4% after 2 weeks (11).

The Tausug mother is not allowed to hold the baby, to expose herself to the hearth, or to kindle embers by blowing, because her throat might become enlarged and her ovary (uterus) might be pushed out as a result of the exertion. The panday, or midwife, attends to her and the child, and she (the mother) is not allowed to work for 44 days. Forty-four is considered a significant number. According to a Tausug belief, the gate of heaven is open during the 44 days after the delivery so that if the woman dies during this period, she is blessed by God and is assured of a place in heaven. The gate closes after the 44th day.

Perhaps it is just as well that physical activity is limited: anaemia and postpartum haemorrhage, which are common, are debilitating; the woman gets a much needed rest from the physical exertion of work in the fields; and more of her time is spent with the newborn child.

2.5.3 Taboos on sleeping and bathing

Sleeping after giving birth has been a cause of concern for many a traditional birth attendant, because of the fear that it will lead to bleeding, insanity, eclampsia, stomach-ache, and even coma. Thus newly delivered women in Bay, Laguna, are cautioned against sleeping after delivery (11). Of the 136 women sampled in this town, 89% had refrained from doing so. Only 11% claimed they slept immediately after delivery. It seems strange that sleeping should be proscribed, when the mother is usually exhausted after going through childbirth and therefore in need of rest.

The proscription on bathing seems to be generally followed by the folk of Bay, Laguna (11), and the Tausugs (17,23). The mother is usually advised not to take a bath soon after delivery. Forty-four per cent. of the mothers in Bay did not take their first full bath until 2 weeks after delivery; 20% bathed 3 weeks after; 8% took their bath a week after their delivery. Four per cent claimed that bathing depended upon the sex of the baby, but there was no explanation of the connection between them.

2.5.4 Sitz-bath and "mother-roasting"

The use of the sitz-bath and "mother-roasting" are two practices that seem related to the Filipino's conceptions of heat and cold. Cold is often associated with disease and is therefore to be avoided. Since the postpartum period is a dangerous one, measures to avert danger are resorted to. In the minds of lay people, these measures are those that oppose cold with heat. Hence the use of the sitz-bath and "roasting" (exposure to dry heat), which not only cause diaphoresis but also healing of the perineal laceration, if any, and hasten uterine integrity.

2.6 The use of abdominal binders

Earlier it was suggested that the use of the abdominal binder or bigkis for babies be discouraged on medical grounds. However, the use of a binder by the mother is helpful in several ways: it stops air from entering the abdomen; it prevents dyspnoea and dizziness; it supports the uterus and keeps it in place; it strengthens the abdomen and keeps it from growing large; and it provides comfort. The binder is quite harmless, except when it is so constricting that blood circulation is hampered and varicosity occurs. This should be pointed out to mothers and traditional birth attendants.

3. Care of the newborn

In the Philippines the care of the newborn baby, like the event of birth itself, is marked by the observance of rituals and practices that have grown out of traditional beliefs.

Bathing, and providing oral cleansing-agents are common measures of care for the newborn. A newly born baby is stimulated to cry by slapping the buttocks (8,9,15,26). It is not known, however, if the air passages are cleared before the slapping. The baby is bathed with warm water or an infusion of guava leaves, except among the Isnegs (26), who bathe the baby in a cold river the day after it is born, to make is hardy. The Isnegs are a small minority of highland people who must eke out a living in unfavourable environmental conditions. Hardiness is therefore highly prized by them. For a premature baby, bathing in cold water could be hazardous and even fatal.

A practice worth studying relates to the first fluid given to the newborn. Concern for the cleanliness of the oral passages is demonstrated by the administration of a decoction of bitter melon to the newborn, to induce vomiting and evacuation of the meconium (4,11,17,19,23; C. Romo, unpublished observations, 1978). The Manus consider colostrum unfit for ingestion (13) and give the infant a small amount of masticated taro, in addition to breast-milk from other mothers.

4. Breast-feeding

In recent years the World Health Organization has laid great stress on the advantages of breast-feeding. In rural areas of the Philippines, breast-feeding is practised unless the mother's milk dries up.

The preparation of the mother for breast-feeding starts during pregnancy, when she is warned against eating food boiled in a kettle if she does not want her supply of breast-milk to dry up or to be scanty. Certain foods, especially bitter ones, are believed to be effective in increasing the mother's production of milk. In Mindoro, the traditional birth attendant serves the mother of a first-born two bowls of soup.

In Sulod (5) the mother is served a bowl of chicken broth mixed with rice right after delivery, to increase her milk supply. The Manobo mother (19) is given payyat fish as a lactagogue.

Breast-feeding may last for 2-3 years (13,19,22,28; C. Romo, unpublished observations, 1978) and even up to 4 years (29). There are arguments against prolonged breast-feeding if it is the only source of nutrients for the child, though it is a valuable method of spacing births.

5. Pregnancy avoidance

The author once attempted to elicit details of pregnancy avoidance and practices among Ivatans, but it proved very difficult to do so.

It was reported that, in Laguna, many women were admitted to hospital for completion of abortion (A. V. Valenzuela, unpublished information, 1977), which suggests that measures to end pregnancy are in fact practised. However, in the available literature on herbal medicine, there are few references to abortifacients.

5.1 Practices

Among couples in Laguna sexual abstinence seems to be the traditional practice for spacing children. Coitus interruptus is another practice that people seem to know about, although the extent to which it is practised is not known. Another form of contraception - post-coital masturbation - has been reported by Bailen in Marinduque (1). So far, this is the only mention of this form of contraception.

In Imus, Cavite and Calasiao, Pangasinan, the most common methods of fertility control are the observance of the safe period in a woman's menstrual cycle and the use of abortifacients. Massaging the uterus in order to displace it is a form of birth control practised among the women of Bay.

The dearth of data on pregnancy avoidance may lead one to suppose that pregnancy avoidance is of minor importance to the traditional birth attendants and Filipinos in general. The lack of information, however, might be due merely to the reticence of the informants rather than any lack of interest and knowledge. In the experience of researchers, including the author of this paper, it is not easy to elicit such information.

5.2 Abortifacients

The women of Bay (11) use herbs and practise massage to produce abortions. Of these two methods, many women favour the use of herbs such as macopa, talong-aso, and walis-walisan. The report does not state how these abortifacients are prepared and if and how they are effective. Clearly, these are areas that deserve to be explored and studied.

In Sulod, a woman whose menstrual cycle is delayed is induced to menstruate by being made to drink extracted juice from the bitter roots of plants such as kuru-rutso, agho, and makabuhay in licuan. The Kalinga woman drinks a prepared herbal drink called gallapot or resorts to massage as a way of aborting the baby. In some instances, the brother of the pregnant woman beats her up in order to kill the fetus. Another abortifacient is the buto-buto poison (Cerbera manghas, Linn. or Cerbera odollam, Gaertn.).

In Tikopia (a small island in the Western Pacific), abortion is induced by manipulation and by rubbing stones on the belly of the woman concerned. For abortifacients, the Tikopia use the dried roots of the ketomatosekeva tree. These roots are either smoked or chewed and then eaten. Although a society that is guided by tradition and superstition, the Tikopia scorn the use of magic as a means of pregnancy avoidance.

6. Barrenness or infertility

If one were to judge from the average number of children per Filipino couple and the national growth rate in population, it would seem that barrenness is not a problem. When it occurs, however, it causes concern. Many of the traditional birth attendants of Bay believe that infertility is due to incompatibility of the blood of the partners. An abnormal position of the uterus is another reason given for barrenness. This, it is believed, can be corrected by massaging. Other beliefs trace the cause of infertility to the shortness of the man's sex organ and to the lack of ovaries in a woman.

7. Conclusions

The data obtained in the study so far provide information on measures aimed at ensuring the successful completion of the birth process. The different societies are equipped with knowledge which, however defective it seems from the scientific viewpoint, is believed to preserve life and prevent suffering and which explains undesirable events.

To this day, it seems that the traditional birth attendant in the rural areas of the Philippines occupies an enviable position in the family as confidante, as attendant during delivery and provider of care for the newborn, and even as family health educator.

The drastic drop in infant mortality rates in recent decades in the Philippines has been attributed to "the widespread use of newly developed medicines such as antibiotics and powerful insecticides" (30). However, the infant mortality rate will not continue to decline unless "the perinatal death rate begins to decline alongside" (30). To achieve this, improvements in social and economic circumstances, in the health of mothers, in medical care facilities, and in public health programmes have been suggested. The training of traditional birth attendants also has a powerful contribution to make.

GLOSSARY OF SELECTED TERMS

buto-buto	- see Cerbera manghas, Linn.
Cerbera manghas, Linn. (or Cerbera odollam, Gaertn.)[1]	- the local name is "baraibai"; "buto-buto" in Tagalog Description: - a shrub with a purgative bark - the green fruit is employed to kill dogs - when fresh, the red fruit is used to rub the legs in cases of rheumatism - the kernel of the fruit is an irritant poison; when it is taken internally, vomiting and purging are soon followed by collapse and death - it is also an emetic and purgative and irritant in large doses; it is used for illegal abortions, but it is not clear how it is prepared for this purpose
habok	- a belt tied on pregnant women
manilom	- a ceremony used among Lubuagan Kalinga women to drive away evil spirits
mahikawaen	- a ritual performed when a woman is heavy with child, to propitiate the spirits of departed children and other relatives who may molest the woman or cause her to suffer discomfort
pagbuhat	- religious ceremony performed in the seventh month of pregnancy, usually on a Monday, Wednesday, Friday, or Saturday
patalag-kaet	- a ritual whose purpose is to introduce the expectant mother to spirit-ancestors so that the latter will know who are their close kinsmen and who are not

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[1] Quisumbing, E. Medicinal plants of the Philippines. Manila, Bureau of Printing, 1951, p. 727.

sitz-bath	- a hip bath; the patient sits in a tub of warm or tepid water with the legs outside, the aim being to promote diaphoresis, diuresis, and relaxation, and/or improve blood circulation
slametan	- food festival held to give thanks to the gods and wish the infant well
taro	- genus: Arcacae - species: Colocasia esculentum, Linn. - a tropical root plant, the root of which is used as food; sometimes the young leaves are cooked with coconut milk and eaten
yabyab	- a ceremony performed by a medium to ward off harm and ensure safe delivery

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TRADITIONAL BIRTH PRACTICES AND PREGNANCY AVOIDANCE IN THE AMERICAS

S. Cosminsky[1]

1. Introduction

Childbirth is a universal life crisis for which every society provides a means of management, including a system of beliefs and practices concerning pregnancy, labour, and delivery, the postnatal period, and emotional and social support for the mother. This paper examines the most common traditional beliefs and practices relating to pregnancy, birth, and pregnancy avoidance in the Americas. The paper emphasises the problems and issues that are likely to be relevant to health professionals and that should be considered when establishing midwifery training programmes and maternal and child health programmes. The issues examined here centre on concepts of the body, definitions of pregnancy, the role of the traditional birth attendant, certain beliefs and practices that influence the different phases of the birth process (such as the hot-cold principle of equilibrium), the use of herbs, the practice of massage, and the central role of emotions.

While anthropologists have been accused of emphasizing the positive aspects of traditional practices, medical professionals often emphasize the negative ones (1). Physicians and nurses often see only the complications and emergencies that are brought into the health centre and hospitals, attributing them to traditional practices or to the ignorance of the traditional midwives, and may be unfamiliar with these practices in normal situations (2). They only become aware of traditional practices when these conflict with "modern" obstetrical ones. Traditional birth attendants and their practices are judged from a biomedical standpoint, and interpretations of these practices may be ethnocentric. For example, a study undertaken in Mexico investigated traditional birth attendants' knowledge of the biomedical system prior to the training programme (e.g., whether they recognized the signs of labour and knew the instruments for attending birth - scissors, forceps, gloves, etc.). The study concluded that the group was deficient in many aspects, but could benefit from training and continuing supervision. There was no investigation of the traditional birth attendants' system of knowledge (3). This same study found that, although 90% said that the attendants gave prenatal attention, "half reported that they rarely did so before the fourth month of pregnancy" (1). Rather than emphasizing that the attendants did provide prenatal care, a positive fact which could be built upon in the training programme, the finding is phrased negatively. Other health professionals have been more positive about traditional midwives, their practices, and their training (4,5). For example, Heiby reports that the most prominent difficulties in the training programme for "parteras" in Nicaragua lie not with the parteras but with the health service delivery system itself (collection and use of management information, training, supervision, and logistics) (5).

Several cross-cultural surveys show both the range of variations in birth practices and the most common patterns of childbirth (6-12). A recent review of these surveys by McClain (2) points out some major shortcomings, including their isolation of birth practices from their cultural context and their failure to show birth as a system. Birth practices have been classified as harmful, beneficial, neutral, or uncertain in order to (a) change or eliminate those deemed harmful by medical personnel and (b) build on those considered beneficial or incorporate them in training programmes (13-16; E. Hurtado, unpublished information, 1978). The emphasis in most midwifery programmes has been on the former, while the latter has rarely been done. The problems inherent in such a classification have been emphasized elsewhere (17,18). Practices are rarely clear-cut and are often relatively more or less harmful or beneficial than an alternative would be. Different experts have classified the same practices differently, depending on the standards used for evaluation. Inconsistent and contradictory evidence exists regarding the effects of different practices, including modern obstetrical ones (18).

2. Definitions of pregnancy and concepts of illness

Different definitions of pregnancy can pose problems and lead to misunderstandings. Most of the societies reviewed in the literature regard pregnancy and birth as normal events, rather than medical problems (i.e., diseases or physiological disturbances). The latter attitude is more common in the modern health sector, where birth is "medicalized".

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Birth is usually perceived not only as a biological event, but also, holistically, as an event with social, ritual, and moral significance. Even where childbirth is considered normal, however, it is often regarded as a dangerous event and may cause anxiety. For example, in Ica, Peru, pregnancy is considered a special instance of an estado delicado (i.e. a "delicate" or potentially dangerous state) (19). In some cases, terms denoting illness are used to label pregnancy, such as esta enferma ("she is sick") used in Mexico and Guatemala. Jordan cautions that the term enferma may not indicate an "illness view" among Mayan women in Yucatan, since the parallel with illness may lie in the fact that both illness and birth are stressful times associated with ritual and physical danger (18). Various precautions and rituals are performed to protect mother and child. Rituals also act as rites of passage, dramatize change of status, provide the mother with support, and allay anxieties. Condemning, prohibiting, or making fun of such rituals, on the other hand, may increase the mother's anxieties. The biomedical system, in contrast, emphasizes possible complications and abnormalities, rather than a normal birth process.

In many parts of the world, health is considered a state of balance or equilibrium. One aspect of this balance is the humoral or hot-cold principle, which is extremely important and pervasive throughout much of Latin America. Things are considered in terms of their degree of heat or cold. By the principle of opposition, "hot" conditions are treated with "cold" substances and vice versa. Extremes of both kinds are to be avoided. Pregnancy is considered as a hot state because of the blood accumulated in the body, whereas the postpartum state is a cold one, because of the loss of blood (considered as a hot substance). Care is taken to restore the balance. This belief runs through all phases of the birth process and forms the basis of many of the related practices, including the use of herbs, hot baths, and restrictions and prescriptions relating to diet and activity, both as preventive and as therapeutic measures. Thus, in advocating the consumption of "good" or "nutritious" foods, health personnel should take the public's idea of what constitutes "good" food into account, since this may be influenced by considerations based on the hot or cold qualities of both the body and particular food items (20).

The application of heat (e.g., by hot baths and teas) is a common practice aimed at restoring balance. Sterility is often attributed to a cold womb and treated with baths, sweat-baths, and herbs classified as hot (19). Heat is believed to activate the uterus, and cold to deactivate it.

An extension of the equilibrium principle is the attempt to balance emotions and social relations. It is commonly believed that strong emotions, such as anger or fright, should be avoided during pregnancy and the postpartum period, since they upset the body's equilibrium and may cause complications such as premature birth, miscarriage, retained placenta, and cessation of milk-flow (13,21,22). Emotional stress may contribute to a difficult or complicated birth. It is believed that, since most incidents of anger or stressful emotion stem from conflict or changes in social relations, the equilibrium of the social environment should be secured in order to ensure the health of mother and baby.

3. Ideas about the body

Ideas about the body, including the structure and functions of its various parts, and folk theories of conception and fetal development may influence the acceptance or rejection of new practices (23,24,25). For example, beliefs about the relationship between conception and menstruation may have a bearing on the effective use of traditional birth attendants in family planning programmes. Among the Qolla in Peru, half of the mothers interviewed believed that conception takes place only during menstruation; others believed that women were most fertile at the time of the full moon (26).

Certain organs recognized by scientific medicine may not be labelled by the traditional system and vice versa. For example, the Yucatecan Maya consider that most internal functions are regulated by an organ called the tipté, which is located in the centre of the body beneath the navel. The tipté is viewed as the place where all the veins come together, and it is believed that its displacement can cause illness. The force of labour may dislodge the organ, causing various symptoms, and the traditional midwives massage it back into place. The tipté has special cosmological and ritual significance, parallel to that of the heart in other cultures (18,27,28). Fear of disturbing the tipté seems to be a key constraint on the acceptance of sterilization among Mayan women (29).

In many Latin American societies, the body is considered to be a tube in which parts can move up or down or be displaced. Practices such as massage and the use of the abdominal binder are partly based on this conception. The bones open during delivery, and the binder puts them back in place (27). The placenta is thought to be able to rise in the body and choke the mother if the cord is cut before it is expelled (23,30). A traditional birth attendant in Guatemala said that physicians can cut the cord immediately because in the hospital they put clamps on the cord, which prevents the placenta from rising up in the mother and killing her; not having clamps herself, this attendant feared putting the mother at risk. The function of the clamps was interpreted according to her concepts of the body. This story also illustrates the problem of demonstrating practices employing instruments that are not available to the traditional birth attendant.

The birth attendant's knowledge is part of a larger social and cultural pattern which needs to be investigated and considered independently, and not by the standards of biomedical obstetrics alone (18).

4. Characteristics of the traditional birth attendant

Most traditional birth attendants are middle-aged or elderly women, illiterate owing to lack of formal education, and practise midwifery as a part-time occupation. Although male birth attendants have been reported in a few groups (26), we will use the female pronoun since female attendants are more common. In most North and South American societies, traditional birth attendants have a specialized role. However, in several lowland forest Indian groups, and in some American Indian groups where there is less social differentiation, older females attend a birth or the woman delivers her baby herself. In such areas, a broader health education programme may be more relevant than a midwifery training programme.

Although the midwives in most areas tend to be post-menopausal, they start practising relatively young. Activity usually increases with age and experience. However, in Etla, Oaxaca, Mexico, the younger and more educated traditional birth attendants were reported to be more active than the rest (3).

In most communities the traditional birth attendant enjoys high prestige and is respected for her skills, which may be both obstetrical and ritual. In some cases, supernatural validation and sanctions add to her status (31,32,33). However, Ladinos (non-Indians) express distrust and fear of traditional birth attendants, since some women die during childbirth in the villages, causing many women to prefer a city hospital for their confinements (34).

The traditional birth attendant is usually a member of the local community, has a personal relationship with her client and family, speaks their language, shares the local system of health beliefs and behaviour, and is available and accessible. Sometimes certain of her characteristics have been viewed as problems by health personnel who stress factors, such as cleanliness, literacy, hierarchical relationships, and authority, which may differ from those valued by the traditional birth attendant and her clients. For example, in El Salvador, courage and compassion are valued, while high cost, lack of knowledge, roughness, and impatience are seen as undesirable (14). Among lay midwives in Florida, determination, dependability, faith in God, affinity with the supernatural, the ability to perform rituals, and amiable social relations with client and community are emphasized (35). Despite the respect she is accorded within the community, health personnel and the educated tend to give the traditional birth attendant a low status, regarding her as superstitious, ignorant, and dangerous. Such attitudes have been an obstacle to effective cooperation and programmes. For example, in parts of Guatemala, the traditional birth attendant is scolded and blamed when she refers complications to the hospital. The effect is to discourage her from making referrals and from using the hospital as a resource. The health sector should encourage and utilize her positive characteristics rather than denigrate her.

5. Recruitment and training of traditional birth attendants

Traditional birth attendants are recruited through inheritance (i.e., following in the steps of older female relatives), supernatural vocation, dream experiences, apprenticeship, or personal interest. These ways of recruitment are not mutually exclusive and sometimes all of them apply (19,23,35,36,37,38). It is commonly believed that refusal to accept a supernatural vocation as a midwife will result in punishment by God through the illness or death of the person concerned, or of someone in her family. The supernatural source and sanction of the traditional birth attendant's skills increase her confidence, protect her by minimizing her liability, and enable her to overcome objections from her relatives (31,32). In areas where the concept of supernatural vocation or destiny is important, trainers should be aware of its implications. For example, in a training course in Guatemala, traditional birth attendants were told that they should insist on expectant mothers going to the prenatal clinic and should make it clear to them that they would attend births only if the mothers complied. Many of the traditional birth attendants in this area believe it is a sin to refuse to help a patient and that if they did, they would be punished by God, Saint Anne, or the spirits of dead midwives. The trainers' attitude reflected a lack of knowledge about the traditional midwife's supernatural vocation and ritual role and was a source of misunderstanding. Further, an authoritarian attitude and failure to explain the benefits of the prenatal clinic would be contrary to the traditional relationship between the midwife and her client, reflecting rather the dominant-subordinate relationships and the concept of control prevalent in the biomedical system. The wider sociocultural context of the midwife's role needs to be understood by those responsible for the programme.

In some groups, traditional birth attendants are not divinely mandated, little ritual is involved, and skills are learned through experience and informal instruction (39,40,41). Apprenticeship is the most common pattern of training in most places. The birth attendant learns by observing and assisting, and sometimes by having watched her own deliveries. Given this background, observational and participatory techniques should be utilized in training programmes instead of, or in addition to, the lecture format, as being more culturally appropriate. Also, an adapted apprenticeship system could be developed as part of the training programmes, with trained traditional birth attendants assisting in teaching the students.

6. Functions of the traditional birth attendant

6.1 Prenatal care

Prenatal care is one of the main ways of improving maternal and child health. The care provided by traditional birth attendants varies widely in amount, type, and duration. The attendants are most frequently notified between the fifth and seventh months (42), although it is reported that in some areas (e.g., Haiti) they do not make prenatal visits (43).

The prenatal examination customarily begins with an informal visit, during which information about the health of the mother and her family is gathered. The birth attendant palpates the abdominal area to determine the position and age of the fetus, massages the mother with various warmed oils or fats, and may manipulate the fetus by external version if the position is abnormal. The massage is believed to loosen the fetus gradually, to make the pregnancy and birth less painful, to keep the uterus in place, and to arrange the fetus. Women place great faith in the efficacy of such massage (44,45). For example, all the women interviewed in El Salvador said that the principal reason for prenatal visits was the sobada (massage). This was not carried out before the sixth month because of a belief that the fetus is not adequately formed until then (14).

Many medical personnel consider such massage potentially harmful because it may be too vigorous and cause premature separation of the placenta. However, because of its importance to the people, rather than condemning massage per se, gentle massage, which is beneficial, could be suggested, and the birth attendants could be taught to judge the position of the fetus correctly while giving massage. This may relax the mother, decrease anxiety, and provide emotional support through physical contact, as well as making her feel better physically. External version is similarly condemned as dangerous, but should be weighed against the risks of Caesarian section and the accessibility of a hospital (18).

Great value is placed on modesty. The woman remains fully dressed, exposing only the area necessary for massage or examination. Women feel shame and embarrassment when examined by a male physician and when questioned about pregnancy. The attention of health providers should be drawn to the fact that the lack of privacy and the nudity involved in examinations at health centres and hospital deliveries is a critical problem in some areas.

The traditional birth attendant often administers herbal teas and baths to ease pains, to "heat" the woman, and to fortify and protect her. Vitamins and iron preparations are becoming increasingly popular among some groups. Attendants may provide advice on diet and activity, including a variety of proscriptions and prescriptions to ward off spiritual and physical dangers. The most common dietary restriction pertains to foods classified as "very cold" (usually including eggs, milk, beans, some other vegetables, and certain fruits), which are considered harmful to the pregnant woman in her hot state (19,20,26,45-49). Extremely "hot" foods, like chili, are also discouraged. Other restrictions relate to foods classified as pesada (heavy) which cause "dirty stomach", a condition treated with purgatives that may cause miscarrage (19). The principle of "sympathetic magic" (whereby, for example, eating rabbit meat will result in multiple births) is another source of restrictions. Such dietary beliefs should be taken into account by personnel making dietary recommendations. The principle of neutralization could be used to accommodate hot-cold beliefs.

Behavioural restrictions vary widely, from extensive to minimal. The most common one is the avoidance of eclipses, which are believed to cause hare-lip, anacephaly, and deformity. Protective action is taken, such as staying indoors or wearing a piece of metal under the skirt. Some restrictions relate to the vulnerable state of mother and fetus, while others relate to the dangerous force of heat or pollution of the pregnant woman. Such factors may influence attendance at prenatal clinics.

6.2 Delivery and management of labour

Although in Canada and the USA, most births (including those among American Indians) take place in hospital, among some Mexican Americans, some religious groups such as the Hutterites, and other groups in rural areas, lay midwives still perform home deliveries (35,44,50,51,52,53,54).

In Latin America, however, the majority of births, especially in rural areas, take place at home with assistance from traditional birth attendants. In some lowland forest groups, usually those not using traditional birth attendants, delivery takes place in the manioc garden outside the mother's home (40,49,55).

The presence of others, especially family members, may be an important and sensitive issue. The use of hospital facilities may depend on it, since in hospital the mother is usually separated and isolated from her family. In contrast to the practice in many parts of the world, the husband may be required to assist with the delivery or be present at it. The presence of the husband or male companion is obligatory in several Latin American groups (7,13,26,39,42,56,57,58). In some societies, the role of the father goes even further, with the practice of couvade, in which the father's behaviour parallels that of the mother and he takes to his hammock or bed and must refrain from certain activities. On the other hand, the Cubeo forbid the husband to be present (55), and the Suyu of Brazil believe that the child will refuse to emerge if the husband is in the house (49).

Female relatives, especially the mother or mother-in-law, are usually present, but children are sent out. Emotional and social support, as well as physical help, is provided by these assistants and is probably important in giving strength, allaying anxiety, and reaffirming the importance of the social unit constituted by the members of the family (18,59).

Kneeling or squatting is the most common delivery position. In north-east Brazil a low birth stool is used (4) and in Yucatan a hammock (18). A vertical or semi-vertical position is usually accompanied by gradual stretching, which may reduce the possibility of perineal tears (18,28). One change occurring throughout Latin America is the increased use of the supine or horizontal position, on the insistence of doctors and nurses and as a result of urban influences (59). While the relative merits of the different positions cannot be gone into here, recent research suggests that the horizontal position makes spontaneous delivery difficult and increases the need for forceps, episiotomies, chemical induction of labour, and other forms of interference (60,61). In rural households, such technological aids are not available. Just like the traditional delivery position, the horizontal position is part of a sociocultural pattern. The latter, however, is associated with the values of medical technology, cleanliness, efficiency, a hierarchical patient-doctor relationship, and the convenience of the obstetrician. In the relationship between the traditional birth attendant and her client, on the other hand, the client has a greater decision-making role. Care should be taken not to eliminate an effective practice, such as the traditional delivery position, in favour of one that may possibly be less efficacious and more disadvantageous under local conditions.

The most commonly reported feature of labour management is abdominal massage. To massage the parturient woman, traditional birth attendants use warmed oil, camphor, vaseline, or some other form of grease, which is believed to warm the infant, loosen it, and make it slip out more easily. According to Araujo, birth attendants in north-eastern Brazil know that abdominal massage speeds labour, although they have not heard of uterine stimulation (4).

A problem in some societies is that women are exhorted to bear down from the onset of labour or too early, which may lead to exhaustion and uterine inertia (18,62). On the other hand, Harrison reports that the majority of midwives interviewed in El Salvador do not permit exertion too early in labour, although they have no precise idea of what "too early" means (58). This problem has implications for teaching about the different stages of labour.

Herbal teas are often given to ease labour pains or speed up labour. The administration of herbs is one of the controversial practices of traditional birth attendants and is discouraged by medical personnel. Some women have been reported to come to the hospital with contracted uteri after taking certain herbs (63). In several Mexican communities, herbs such as zoapatle (*Montanoa tomentosa*) are given to increase uterine contractions (64). More research and analysis of these herbs are needed. Research of this kind is being undertaken by such groups as the Mexican Institute for the Study of Medicinal Plants and should be expanded. The traditional knowledge may be used as a basis for judging beneficial effects and safe doses. A blanket condemnation of traditional herbs is not warranted in the present state of knowledge.

6.3 Dealing with prolonged labour and birth complications

Various techniques are used to induce gagging or contraction of muscles in cases of prolonged or difficult labour. These include putting the woman's braid in her mouth or a feather in her pharynx, giving her oil to drink or a raw egg to eat, having her blow into a bottle or through cupped hands, or making her sneeze. Other methods have a magical basis such as untying her hair, unlocking locks, and opening drawers. Medicinal teas are commonly given, as mentioned above. Sometimes the women is shaken in a blanket or a shawl is rotated round her waist, and, in extreme cases, she may be turned almost upside down (26,65).

Massaging and external version are used in cases of malpresentation. For example, in the case of a foot or hand presentation, the traditional birth attendant may oil it, press it back in, and then externally manipulate the baby (13,66).

Difficult births may be attributed to adultery, witchcraft, intercourse during pregnancy, failure to observe dietary rules, or demonic agents. In such cases, the traditional birth attendant or a shaman may divine the cause, perform the proper rituals, say prayers, listen to confessions, and ask pardon of God or the spirits. The importance of symbols and rituals in promoting birth is illustrated by two analyses of a Cuna birth ritual, one by Levi-Strauss (67) and one by Chapin (68), although they give different interpretations of the same rituals. While some practices seem to increase anxiety, they may work by frightening the woman into giving birth. Most practices, however, including confession and pardoning, may help the woman psychologically, provide emotional support, allay anxiety, and thus help to relieve pain. The actual effects of these practices, symbols, and rituals and the attitudes of traditional birth attendants and their clients towards them are a complex subject, on which more research is needed.

6.4 Disposal of the placenta

Many of the techniques used to help expel the placenta are the same as those used for delayed labour. If the placenta still does not come out, some birth attendants try to expel it manually (45,62).

The placenta is usually believed to have a special relationship to the child (e.g., as its sibling, or shadow) and may affect its future welfare. Thus proper disposal is necessary. The most common method is burial, usually under the hearth, in a corner of the house, or in the shade in the garden. Alternatively, the placenta may be placed in a tree.

All these places have symbolic meaning. Improper disposal could result in misfortune for the mother or infant (41,42; J. R. Davidson, unpublished information, 1981). Concern about the disposal of the placenta and cord is considered to be a factor in the underutilization of rural medical facilities in Peru, Mexico, and Colombia (15,57,69; J. R. Davidson, unpublished information, 1981). A few hospitals in northern Mexico deliver the placenta to the family upon request, and this practice could be adopted in other places where placenta disposal is a source of anxiety (70).

6.5 Treatment of the umbilical cord

In most parts of Latin America (and previously in North America), the umbilical cord is not cut until after the placenta is expelled. This practice is partly a consequence of beliefs concerning the close relationship between the infant and the placenta, and also of the belief that the placenta will rise up in the mother's body to choke her if the cord is cut before expulsion of the placenta. This practice is contrary to that of the hospitals, where the cord is cut immediately; and, in most training programmes, traditional birth attendants are taught to cut the cord immediately. However, some physicians now advocate waiting until the cord stops pulsing in order to allow more blood and oxygen to circulate to the baby (9). By waiting to cut the cord, the traditional birth attendant actually permits the baby to receive the supplementary blood held in reserve (4).

Contamination during the cutting and dressing of the cord has been considered a major factor in infant mortality, especially from neonatal tetanus, and sociocultural practices in this domain should thus be of particular concern. The cord may be tied with ordinary or special thread, cord, grass, string, mague fibre, or the mother's hair and cut at a length varying from two fingers to a handspan. A pair of scissors or a razor blade is commonly used today, but bamboo, arrowcane, bone, glass, a knife, or a machete may also be used, although some groups believe that metal is cold and therefore dangerous. Cauterization of the cord with a candle flame or hot blade is practised in many parts of Mexico and Guatemala. In some areas of Guatemala, neonatal tetanus is rare because the cord is cauterized or sealed with hot wax (34). The training programmes, however, condemn this practice and recommend using alcohol, merthiolate, or other disinfectants. One nurse-midwife reported that the practice was harmful because the hot wax might drip and burn the child. The likelihood of such an occurrence should be weighed against the potential benefits of leaving the cord clean and dry. Some midwives combine practices, cauterizing the cord first and then applying alcohol, merthiolate, and talcum (13). Trainers should be cautious about abolishing a practice that is adapted to the local conditions of rural homes, which are not aseptic and where it may be difficult to boil instruments.

A variety of substances, some of which may be contaminating, are applied in dressing the cord. In some areas which had high rates of tetanus, such as Haiti and Brazil, the training of traditional birth attendants has improved cord-cutting techniques and referral for tetanus immunizations has resulted in lowered mortality rates from neonatal tetanus (4,43).

Since asepsis is such an important problem, the hot-cold principle (with emphasis on the importance of heat) could be used to teach concepts of asepsis and hygiene. The reasons for boiling water, the use of scissors, and the use of disinfectants could be explained in terms of "heating" the mother or "heating" the metal scissors, germs being viewed as a "cold" phenomenon. The principle of neutralization could be used to accommodate beliefs that would otherwise interfere with recommended practices.

6.6 Treatment of the newborn

The neonate is usually washed with warm water, sometimes containing herbs, or cleansed with oil. In some areas, the baby and mother are taken to be cleansed in the sweat-bath. Various substances are placed in the infant's eye including boric acid, lemon juice, silver nitrate, and flowers of Castile and San Juan (45,50,70,71). The newborn is often given a purgative such as castor oil to get rid of the meconium, which is considered unhealthy (43,45). Swaddling the infant is common, except in the lowland tropical forest areas, and in some cases causes overheating of the infant. The cradle-board is still used by several American Indian groups (72,73).

The initiation of breast-feeding varies from immediately after birth to three days after. For example, in El Salvador, half of those interviewed gave the colostrum to the baby (14); in Puno, Peru, the baby is not nursed immediately so that it will not be gluttonous; breast-feeding is not initiated in north-eastern Brazil until 24-48 hours after birth (4,74). In Haiti, it is believed that the "first milk" must be discarded and that milk is not good for the baby until it is white (43). If the baby is not given the colostrum, substitute liquids, such as sugar water or anise and water, are given with a spoon, a chupon (a liquid-soaked cloth to suck on), or, increasingly, a bottle (14,34). In order to encourage the giving of the colostrum, medical personnel should be aware of the predominant practices and the related beliefs.

6.7 Postpartum care

The postpartum period is regarded as particularly dangerous for the mother and baby, who are thought to be susceptible to both physical and supernatural harm at that time. Because many of the dangers envisaged are linked with the vulnerable "cold" state of the mother, various protective measures are taken. The mother is usually secluded and her activities restricted for 7-40 days. The room is darkened, and she is covered to avoid draughts.

In some groups, the traditional birth attendant washes the blood-stained clothes and helps with household tasks, as well as massaging the mother and adjusting the abdominal binder (23). The massage is believed to encourage the flow of blood and thus cleanse the mother, to increase milk-flow, to relieve postpartum pains, and to hold down the uterus. The binder is believed to "close the bones", keeping the uterus in place, and preventing it from falling. Massaging and heat are combined in the sweat-bath, used by some Indian groups, during which the traditional birth attendant massages and bathes the mother. In other areas, a sitz-bath or hot herbal bath is given to the mother. This is thought to increase the milk-flow and heat the milk. In addition, the baths may have ritual or religious significance.

The sweat-bath has been condemned by some medical personnel as dehydrating and weakening the mother. It is not known if dehydration actually occurs; this may depend on the duration and strength of the steam-bath. No research has been done on possible beneficial effects, such as relaxing muscles, easing soreness, stimulating circulation and milk-flow, preventing infections, and promoting healing. Rather than being viewed as a problem, the use of such baths and of heat could serve as a basis for promoting hygienic postpartum care of the mother.

Postpartum dietary practices are important because they are believed to affect the quality and quantity of the mother's milk. Usually, hot foods are eaten and cold foods are restricted. In addition, special foods, herbs, or other substances may be regarded as especially nourishing and as promoting lactation; for example, chicken soup, hot chocolate, toasted tortillas, and atole (corn gruel). Most studies report dietary restrictions but do not establish how closely they are observed. Several societies place similar restrictions on the father's diet, as part of the couvade (30,49,55,56,75).

The traditional birth attendant often shares a ritual meal with the family and says prayers to protect the infant. At the end of the seclusion period, a ritual feast may be held to celebrate the return of the mother to normal activities, reinforce the solidarity of the family, give support and status to the mother, and mark the end of the traditional birth attendant's duties.

7. Pregnancy avoidance

The most widespread method of pregnancy avoidance is abstinence, often combined with certain taboos, such as those against sex during lactation or until the child can crawl or walk (49). In several lowland tropical forest groups, abstention is associated with the couvade, but there is less emphasis on abstention in the highland groups of Latin America. The postpartum taboo is based on the belief that intercourse or becoming pregnant again will affect the mother's milk and make the infant sick. Such taboos are being modified or abandoned with increasing modernization. Hern argues that herbal contraceptives, reportedly used by the Shipibo Indians of Peru, may owe their apparent effectiveness to prolonged postpartum abstinence and the practice of polygamy. Fertility increased in the study village as polygamy and the prolongation of abstinence declined, even though over 43% of the women between 20 and 54 claimed to have used herbal contraceptives (76). On the other hand, Heer suggests that the lower fertility rates of the Indians of Peru compared to the Mestizos may be due to some indigenous fertility control practices (77). Unfortunately, no botanical information is provided on the herbs employed.

The rhythm method is also used, but often with erroneous ideas about the period of highest fertility (46). The most frequently mentioned method is the use of herbal teas. Some of the plants used may inhibit or neutralize gonadotrophic pituitary hormones, but the majority are probably abortifacients and may provoke uterine contractions (46,78,79,80,81,82).

It is difficult to differentiate between emmenagogues (plants used to induce menstruation when it is delayed) and abortifacients; the absence of menses may be treated as a disease in which "bad blood" must be removed (83). This ambiguity allows women to avoid the dilemma of possibly inducing an abortion. In Cali, Colombia, the recognition of *atrazo* (menstrual delay) allows women to practise fertility regulation (46). The herbs most frequently used for this purpose are parsley, lemon, rue, white ragweed, spiderwort, and cinnamon. Most of those used are of a "hot" quality. However, Browner & Ortiz de Montellano, in a recent study of Colombian and Mexican plants, report that many of the plants they investigated (84) were irritants.

Abortion is also reported, mechanical means being used infrequently, and physical means more frequently. The latter include manual compression of the uterus, lifting heavy objects to cause a miscarriage, or having someone jump on the woman's stomach. Abortion appears to be more widely accepted in the tropical forests of South America, where extended postpartum taboos, a low protein diet, and a high incidence of infanticide are also reported (U. D. Gacs, unpublished information, 1977). Infanticide is practised by a number of groups, usually when the mother has a nursing baby or the infant is deformed. Infanticide of females is reportedly more common than infanticide of males.

8. Conclusions

The confinements of most American Indian women in the USA and Canada take place within the modern health sector. Nevertheless, some of the available studies show that many attitudes, beliefs, and practices concerning childbirth are still continued, notably those linked to cultural patterns and values of kinship, tribal sharing, and religion or world-view, including relationships with the natural environment and the spiritual world (72,73,85,86).

In most of Latin America, especially in the rural areas, traditional birthing systems predominate. Two basic patterns can be differentiated; those of the highland Indians and Spanish-influenced areas, and those of the lowland tropical forest and river basin groups. The former tend to have a more complex system of status differentiation, often involving a trained birth attendant, the hot-cold system, and extensive prenatal and postnatal attention and rituals. In the forest areas, women tend to give birth alone or attended by older female relatives, and more emphasis is placed on the postpartum period, the institution of *couvade*, and restrictions on the activities and diets of father and mother. These differences should be taken into consideration in the establishment of training programmes for traditional birth attendants and maternal and child health programmes.

Many of the beliefs and practices examined here have been attacked by "modern" medicine, and are also changing in response to modernization, education, missionary activity, and urbanization. Hospital deliveries are increasing, but hospital services are still unavailable to most women. With the shortage of medical facilities and the need to expand primary health care, several countries and organizations have established midwifery training programmes for traditional birth attendants to "upgrade" their practices. The training programmes have been almost universally unidirectional, with emphasis on improving indigenous practices or changing those considered harmful by the trainers (herbs, sweat-baths, the vertical delivery position, massage, etc.) (87). Reciprocal teaching and adaptation need to be considered in order to promote an understanding of beneficial traditional patterns, such as local social support mechanisms, the advantages of the vertical position, and the importance attached to the preservation of modesty, and ensure that these factors are given due emphasis in future programmes. This approach would stress the need to learn the viewpoint and problems of the traditional birth attendant and upgrade the "modern" obstetrical system rather than eradicate or change the traditional one (18).

Some aspects of the modern system are certainly more beneficial, such as the greater attention paid to aseptic treatment of the cord. In other cases, some of the traditional practices might be superior and better adapted to local conditions. The tendency has been to dwell on problems arising from the traditional birth attendant's age, illiteracy, and traditionalism, or from the mother's ignorance and manifestation of "cultural barriers" (1,88). The modern medical system and training programmes, particularly the attitudes of the personnel involved, the teaching methods employed, and the lack of back-up services and supervision are examined less often, though a beginning is now being made (5,11).

Mexico has instituted a large-scale effort to incorporate traditional birth attendants into the national family planning programme, utilizing community-based contraceptive distribution. Although this effort is unidirectional (teaching scientific medicine to traditional practitioners), a baseline study to understand the beliefs and practices of the traditional birth attendant was conducted first, and a dialogue established between the traditional practitioners and the medical students working on the project (89).

One programme in Brazil has been training traditional birth attendants to recognize high-risk patients for referral and to pay greater attention to hand-washing and aseptic practices, while allowing them to continue deliveries at home. When a traditional birth attendant is used in a clinical setting, she is allowed to perform the delivery if possible. The programme has incorporated or adopted several traditional practices, including the use of a birthing chair with an overhead crossbar. As a result, there have been fewer Caesarian sections, a more informal and relaxed atmosphere, less frequent perineal tears, fewer infections, and less fetal distress from prolonged labour, and it has been possible to carry out complete antitetanus immunization and Pap smears for all prenatal patients. The success of this programme has stimulated the acceptance by the community of sanitation, water filtration, immunization, and an oral rehydration programme (4,90).

The traditional birthing systems examined in this report present a contrast with modern medical practices. The relationship between the traditional birth attendant and her client is personal, informal, supportive, and holistic, compared with the more authoritarian, depersonalized, formal, and segmented biomedical approach exemplified in hospital deliveries (71). Traditional childbirth is family-centred rather than practitioner-oriented, and the woman is supported by members of her family. The traditional birth attendant and the woman's kinfolk provide emotional and physical support, but allow her to remain physically in control of labour. Thus birth is seen not only as a biological process, but also as a social, emotional, and spiritual one, culturally defined and patterned. Many of the practices and beliefs discussed here have been taken out of their sociocultural context for comparative purposes, so it must be stressed that they are interrelated and embedded in a sociocultural matrix. In order to develop an appropriate, effective, and acceptable programme for the training of traditional birth attendants and improve maternal and child health programmes, it is necessary to understand the relationship of birth practices and beliefs and the role of the traditional birth attendant to the indigenous system, and to the values and institutions of the particular culture or community.

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CAN LITERACY INSTRUCTION CONTRIBUTE TO THE TRAINING OF TRADITIONAL BIRTH ATTENDANTS?

John W. Ryan & J. G. Kim[1]

1. Introduction

The question forming the title of this paper is one that has led the United Nations Educational, Scientific and Cultural Organization and the World Health Organization to explore a new area of cooperation. That UNESCO and WHO should cooperate is only logical, as major parts of their respective programmes are aimed at the same deprived and impoverished quarter of the world's population. It is also evident that education and health are closely linked. WHO's Global Strategy for Health for All by the Year 2000, adopted in 1979 by the Thirty-second World Health Assembly, clearly notes the connection between literacy and health:

> "Literacy is of major importance for health; it enables people to understand their health problems and ways of solving them, and facilitates their active involvement in community health activities. Whereas the adult literacy rate is almost 100% in industrialized countries, it is only 28% in the least developed countries, and only 13% among women in those countries."(1)

The same association between education and health is cited in the analysis of world problems upon which UNESCO's Second Medium-Term Plan (1984-1989) is based:

> "Youngsters who miss out on school, illiterate adults, and young people who leave school too early without qualifications of any kind come, as a rule, from the same underprivileged environments, the environments of those who are afflicted by chronic disease and malnutrition and often live in seriously insalubrious conditions, in rural areas or on the outskirts of great conurbations ... Illiteracy, which is also a denial of the right to education, is thus an indicator and together with all its consequences constitutes one of the major challenges to the international community."(2)

Of the fourteen major programmes adopted for the Second Medium-Term Plan, that to which the largest proportion of the total resources is devoted is "Education for all", which includes efforts to extend schooling to all children, to combat illiteracy among out-of-school youth and adults, and to ensure equality of educational opportunities for girls and women.

In the light of their common analysis of the relationship between health and education, it was natural that the two organizations, WHO and UNESCO, should undertake a common exploration of areas in which their cooperation could be fruitful and should examine, in particular, the intersection between "health for all" and "education for all".

2. Background

As early as 1977, an *ad hoc* meeting of the United Nations and its associated agencies urged the incorporation of a strong literacy component in the operational programmes of the United Nations Third Development Decade. In 1980, a follow-up meeting recommended that a systematic effort be undertaken, at both headquarters and field levels, to identify projects and programmes that could be strengthened through the introduction of appropriate literacy and/or adult education components. Subsequently, bilateral discussions were pursued between WHO's Division of Health Manpower Development and UNESCO's Division of Literacy, Adult Education, and Rural Development. After exploring various possibilities, it was agreed that the two organizations would cooperate in seeking to strengthen the training of traditional birth attendants through the inclusion of a functional literacy component. The training of traditional birth attendants was a field in which WHO had worked with considerable success for more than a decade. It was also one in which UNESCO could draw upon the rich experience gained in designing functional literacy programmes for the Experimental World Literacy Programme (EWLP) carried out with the cooperation of the United Nations Development Programme in 11 countries between 1967 and 1973. Many of the EWLP programmes, as well as subsequent national programmes with which UNESCO has cooperated, were designed to relate the teaching of literacy to instruction in specific vocational skills. The immediate aim of such programmes was to promote mastery of those elements of literacy needed for professional training, rather than general literacy. For a variety of reasons to be discussed below, it is considered that the literacy component in the training of traditional birth attendants should be similar in its conception and objective.

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[1] The authors are members of UNESCO's Division of Literacy, Adult Education and Rural Development. This paper was prepared by them in their personal capacities and should not, therefore, be considered as an expression of the official views of UNESCO.

3. Training of traditional birth attendants: the need and the problem

Unquestionably, the strongest arguments for choosing the training of traditional birth attendants as an area of cooperation between WHO and UNESCO is that these attendants occupy a strategic position in the delivery of health services and there is convincing evidence that improvements in their pre-service and in-service training can yield important benefits for a relatively modest and affordable investment. The majority of babies are born in the countries of the Third World, and they are delivered not by full-time professional midwives or physicians, but by "granny midwives", part-time indigenous practitioners to whom WHO has given the name "traditional birth attendants". In nearly all traditional societies, the traditional birth attendant plays an important role, but she is often limited by shortcomings in her knowledge and training. She may well understand the importance of cleanliness, but she has no scientific understanding of the distinction between "clean" and "sterile" and may, therefore, use an unsterilized instrument to cut the cord. She is also limited by her perception of her role. She may not, for example, see it as part of her responsibilities to encourage her clients to practise family planning, even if she recognizes that too frequent and too closely spaced births endanger the health of both mother and children.

WHO's experience has demonstrated that most traditional birth attendants are not so wedded to superstitions and traditional practices that they will not welcome the opportunity to learn new ways and practise new skills. Training courses for them have been generally well received and well attended. They have already brought important health benefits to mothers and children in many developing countries. Fifty-two countries now offer some form of training programme for traditional birth attendants. Indeed, more and more countries are recognizing the importance of investing in their training, which should reflect the fact that their role is multidimensional. Above all, this training should teach birth attendants safer delivery procedures, enable them to extend their traditional role in order to give better service to their clients, and promote a new understanding of their relationship to other health workers. In view of the complexity of these requirements, training is seriously hampered by a cultural disadvantage afflicting the vast majority of traditional birth attendants: their illiteracy.

While trainers do what they can to surmount this obstacle, using oral and visual means of communication, the limitations on what can be taught and how much can be learned are formidable. The information conveyed through oral communication, whether in the form of a lecture, a conversation, or a discussion, tends usually to be partially forgotten, often to be distorted, and sometimes to be even completely transformed in recollection. Visual communication - through drawings, diagrams, pictures, and other teaching aids - presents its own problems. Visual literacy, like conventional literacy, is an acquired skill. Pictorial conventions of symbolic representation, abstraction, and scale must be carefully taught. Those who make the erroneous assumption that only good eyesight is required to understand a simple drawing are often perplexed by the conclusions of their audience. A health worker who sought to make villagers aware of the role of mosquitos in the spread of malaria through the use of enlarged drawings of the insects found his listeners amused and unbelieving. They assured him that he need have no fear as they did not have those giant mosquitos in the area, only a lot of tiny ones. "Picture blindness" is caused by unfamiliarity with graphic conventions. The step-by-step teaching of these conventions is, therefore, an indispensable part of any training programme which intends to make use of pictures, diagrams, and other visual representations.

4. How much literacy?

A question that is often posed when literacy instruction for traditional birth attendants is discussed is that of the level or standard of literacy to be achieved. It is evident that while literacy may be measured for census purposes as a dichotomous variable (i.e., people are classified as either literate or illiterate), there is, in fact, a whole range of intermediate states between full literacy and complete illiteracy. Also, as literacy implies the ability to read and write and frequently also includes the notion of numeracy, it is necessary to specify at what level each of the appropriate skills is to be taught. There is also the question of the kind of literacy required. To be sure, literacy is a transferable skill, but it is also true that the newly literate are most at home with the materials through which they have acquired and practised that skill. With appropriate training, an individual may be able to understand a questionnaire and circle the appropriate response, yet be quite unable to write even a simple letter to a friend. As the situation and background of traditional birth attendants varies sharply between, and often within, countries, it is evident that no general prescription can be offered.

For example, in a few countries, birth attendants must be literate in order to be admitted to a training programme. In such cases, a reasonably advanced level of literacy might be aimed at; e.g., the ability to read a simple newsletter about recent developments of which birth attendants should be aware, the ability to keep simple but accurate patient records, and the ability to provide essential written information when patients are referred to health centres. In other countries, few, if any, traditional birth attendants are literate. In these circumstances, the programme might aim, for example, at teaching visual literacy to enable the traditional birth attendant to interpret diagrams, and at showing her how to calculate the probable date of a client's delivery and check needed supplies on an order form.

While it is obviously impossible to prescribe a standard literacy curriculum for the training of traditional birth attendants, or to specify a set level at which particular learning objectives should be achieved, it may be helpful to indicate some of the considerations that must be taken into account in designing an appropriate literacy component for such training.

First, the social, educational, and economic profile of the traditional birth attendant must be considered. What is her age? What has been her education? Is she already literate or semi-literate? How did she become a birth attendant? How did she receive her training? How many years' experience has she had? What objective assessments have been made of her skills? Who are her clients? What compensation does she receive for her work? How many deliveries per year does she perform?

The answers to these and similar questions will often be used to determine whether or not a traditional birth attendant qualifies for training. Criteria based on age and educational background might also be used to decide which of them will receive a training programme including a literacy component and which of them will be enrolled in a more traditional training programme. In any case, it is essential in education to begin at the learner's level and it is therefore necessary to determine this as precisely as possible.

On the basis of studies carried out by WHO, it would appear that the typical traditional birth attendant is middle-aged or elderly. In most countries she will also be illiterate, will work only part-time as a birth attendant, and will have learned her profession through traditional apprenticeship and experience.

Given this profile of the average traditional birth attendant, it would probably be unwise to aim at too high a standard of literacy, particularly as she will normally work only part-time as a birth attendant and will gain her livelihood in other occupations, which will not leave much time for training. Hence, it is important to be selective in determining the amount and type of literacy training that will contribute to the implementation of the wider training goals. The achievement of general literacy may remain the ultimate goal of literacy instruction - and may, indeed, be pursued by the trainee apart from her training as a birth attendant - but the immediate objective is to enable her to improve her performance as a birth attendant and to improve her ability to advise on family planning and other matters.

Although the basic functions performed by the traditional birth attendant are determined by the biological process of birth and the physical needs of mother and child, her role differs substantially from culture to culture, as the abundant literature on the subject indicates. In general, the purpose of training programmes has been not only to develop safer practices but also to extend the role of the traditional birth attendant to take in family planning and, in certain cases, the provision of primary health services. In general, the wider the role, the greater will be the need for information and hence for literacy skills.

If the birth attendant is not only to assist at the birth, but is also expected to offer prenatal advice and to screen high-risk cases for follow-up at health centres, she will need to be provided with a better theoretical understanding, as well as a number of new skills. For example, if mothers less than 150 cm tall and low birth-weight babies are to be referred to health centres, the birth attendant will require the elementary knowledge needed to apply these physical criteria. If she is to offer family planning advice, she will have to receive a regular flow of up-to-date information and be in fairly regular communication with the health services. In fact, the training requirements - and particularly their literacy component - depend to a considerable degree on the extent to which a health system exists. If there are better trained practitioners to whom difficult cases can be referred, such procedures as screening of patients, record-keeping, and transmission of information become of increased importance, and greater time needs to be devoted to them in training courses. A more developed health system will also tend to introduce standardized procedures and forms, which will have to be explained. Indeed, the explanation and use of such forms may constitute the core of the literacy component in the training of traditional birth attendants. To be sure, important progress can be made by simplifying these reporting procedures, and some ingenious means of doing so have been developed in programmes using traditional birth attendants, but a means for conveying essential information has to be devised and literacy is normally the key to it.

Lastly, there is the question of the time and resources available for training. Literacy skills are most easily assimilated when they are taught step by step and when earlier lessons are regularly reviewed and used as the basis for future ones. But training courses for traditional birth attendants are normally provided on a basis of one or two days a week. It is evident that, in planning a literacy component, it is necessary to consider both the total amount of time that can be made available for literacy instruction and the distribution of that time.

If training time is highly fragmented, it would be better not to be too ambitious regarding the amount of literacy work that can be carried out. It would probably be wiser to identify a few frequently needed literacy skills and to concentrate on these, as subsequent practice can then be expected to reinforce the initial learning. It might also prove useful to teach a few key phrases containing essential information and, as far as possible, the basic graphems used in writing the language. "Boil the scissors for ten minutes" could be a message that trainers would like to get across, and they would be glad to have trainees concentrate on it as they struggle to copy it again and again.

5. An approach to implementing literacy training for traditional birth attendants

This section will endeavour to define the steps required to develop a literacy component for inclusion in the training of traditional birth attendants. As little experience has been gained in this area as yet, the suggestions made are general and tentative. It is likely that they will require revision when tested in practice.

A basic assumption in the proposal that follows is that the literacy-training component is part and parcel of an overall training programme for traditional birth attendants and not simply an added requirement or subject. This means that the content and objectives of the literacy component should be designed to contribute to the achievement of overall training goals and not only to the attainment of a given level of literacy. In the initial phases, this does not necessarily preclude the use of non-specialized primers and training materials or conventional approaches to literacy instrction. It does, however, imply that such initial training leads on to more specialized instruction in which particular importance will be assigned to the vocabulary, concepts, content, and principles of the overall training programme. The integration of literacy with other training components would appear desirable not only in the implementation phases of the programme but also, and especially, in its planning and design. In practical terms, the inclusion of a literacy component is likely to require more careful attention to the linguistic aspects of the programme; it may also require the collection of additional data or a reinterpretation of data collected for other purposes. In most ways, however, the major steps in programme preparation will remain essentially the same.

The starting-point in designing any training programme - with or without a literacy component - is to achieve a detailed and well-founded understanding of the existing situation and its likely evolution over the next few years. In the case of a training programme for traditional birth attendants, this means answering some basic questions. Who are these birth attendants? What education and training do they have? What determines recruitment into the practice of attending births? What existing delivery practices seem undesirable or dangerous? Various WHO publications give details on the information requirements for designing programmes for traditional birth attendants. The purpose of gathering information of the type outlined is to understand the subjects of the proposed training effort - the traditional birth attendants themselves - and the conditions and circumstances of their work.

In the design of literacy programmes, the initial phase is called the étude de milieu. Its aim is to determine the need for literacy, the uses of literacy, and the motivations for literacy. In the case of programmes for traditional birth attendants, it would be desirable to explore the attendants' own feelings about their need for training and the role that literacy instruction might play in such training. A careful examination of their availability for training would also be desirable. Could they, for example, attend a two-week residential programme or must their training be primarily of the "on-the-job" variety? If time constraints are too severe, literacy instruction may be precluded and the birth attendants might be encouraged to enrol in community literacy-training activities that are not directly linked to their practical training. The étude de milieu aims at discovering the realities of the situation so that their implications for a training programme may be carefully considered before the programme is launched. Otherwise, problems may be encountered when it is too late to circumvent them.

A further aspect that has to be carefully studied in connection with the literacy component - and other components as well - is the existence or non-existence of formal health care services. It would make no sense, for example, to plan a training programme on the assumption that emergency assistance or protein supplements are readily available, if in fact this is unlikely to be the case. As regards literacy, it would not be useful to stress the need for written communication with higher-level health workers if, in fact, such health workers do not exist in adequate numbers or are not available to respond to problems raised by the traditional birth attendants. In short, programme design has to take into account the social, psychological, economic, and cultural realities of the situation. The starting point is to determine what is, and not (or not yet) to decide what ought to be.

The number of languages used in many developing countries and the many unstandardized forms taken by such languages pose special problems as regards the development of training materials. One dialect may be officially recognized as the standard form of the language and may be in general use in urban areas, but unstandardized dialects may continue to prevail in the countryside. It was recently found, in a maternal and child health programme in India, that many basic words in the standard dialect of Andra, including the word for "pregnancy", were not understood by speakers of dialectal forms of that language. Perhaps the need to produce written material and carefully to test the denotations and connotations of various terms may facilitate an understanding of terminology, and hence of course-content. In any case, the inclusion of a literacy component will often call for the services of linguists as well as curriculum developers.

Another consideration in designing a literacy component is the realization that literacy skills are highly perishable if not used regularly. Hence, it would probably not be useful to design such a component unless opportunities were provided for the trained birth attendant to make regular use of literacy skills in subsequent in-service training and, more especially, in her practice.

The foregoing paragraphs have dealt with the considerations to be borne in mind when formulating a literacy component for a training programme for traditional birth attendants. Such a programme might involve the following steps:

- the development of practical, simple, and relevant teaching/learning materials incorporating the teaching of literacy;

- the establishment of an appropriate teaching methodology based upon the characteristics of the trainees;

- the testing in pilot areas of the programme being developed; and

- the assessment of the relative costs and effectiveness of a programme with a literacy component as compared with the traditional type of training which neither makes use of literacy skills nor attempts to teach them.

To assess the last item, one would have to provide the traditional birth attendant an opportunity to make use of her literacy skills. There is little reason to suppose that a literate birth attendant will prove herself more effective in a role and situation geared to an illiterate one. The most important aspect of her literacy is that it should permit the transformation and expansion of her role in the provision of health services to mothers and children. Training of any form is likely to prove useful only if the "system" changes to accommodate the new skills and abilities of the trainee.

The proposed methodology could be derived from experience gained in the development of functional-literacy courses and from existing methods for training traditional birth attendants. It is noted above that literacy should not be an end-product, but a by-product of the training. Literacy skills should therefore be introduced gradually, along with technical training.

One suggested design for a programme with a literacy component proposed that materials should be developed in modules.[1] Each module would consist of a learning need or concept identified by an experienced trainer of traditional birth attendants, and a number of key words based upon that need or concept. The concept might, for example, be "sterilization". Among the key words introduced might be "bacteria" or "boiling". The use of modules subdivides learning tasks into manageable units and enables the learner to master them thoroughly, thus gaining a sense of accomplishment and confidence. The module would often be introduced by a picture or diagram illustrating a key concept. The concept and key words associated with it would be carefully discussed and presented in writing. Reading and writing key words would serve to fix concepts in the learner's mind. Many concepts would also require the introduction of numerical operations, which would be regularly practised and used. Economic, social, and cultural factors would also be discussed, if relevant. The module would thus be broken into components and would itself be a component of the overall training programme. It would integrate literacy with other aspects of training and use literacy as a means of instruction in other subject-matter, while also using such subject-matter to develop and reinforce literacy skills.

The instructional materials for traditional birth attendants would normally form part of a "family" of materials, including a trainer's guide and a set of teaching aids.

As noted at the beginning of this section, the above suggestions are tentative. They need to be tested in pilot projects and revised, developed, and modified as required. The training of traditional birth attendants has to be adjusted to the circumstances and requirements of a particular environment, and this is true also - indeed, especially - of the literacy programme, which must take into account the idiosyncracies of the language and language-learning.

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[1] A useful teaching/learning kit is the "TBA Trainer's Kit" produced jointly by the British Life Assurance Trust for Health Education (BLAT) and WHO. This kit could effectively be redesigned to incorporate literacy training.

SUPERVISING TRAINED TRADITIONAL BIRTH ATTENDANTS

Gill Walt[1]

While it is widely recognized that supervision of traditional birth attendants or other community health care workers should improve both the quality of their work and their links with the health services, the supervision provided is unsatisfactory in the great majority of countries.

1. The function of supervision

Supervision may have several functions, few of which are ever explicitly articulated. The following list of such functions as they pertain to traditional birth attendants is an adaptation of one drawn up in connection with the supervision of community health workers (1).

- Recognition: helping to establish the legitimacy and credibility of the trained traditional birth attendant in the eyes of the villagers.
- Protection of status: explaining to the community that the traditional birth attendant really is more effective after training and can do something of value for the community.
- Motivation: encouraging the traditional birth attendant to practise what he or she has been taught.
- Education and counselling: reinforcing learning and better practices, as well as providing continuing training.
- Technical assistance: helping the traditional birth attendant to identify and refer women at risk; seeing referred cases with the attendant.
- Linkage: assisting the attendant and the community to make use of referral services, and fostering cooperation between government midwives (or other health workers) and traditional birth attendants.
- Monitoring and control: checking records and performance.
- Evaluation: gathering and analysing appropriate data to assess the effectiveness of traditional birth attendants.

Supervision can also serve as a way of making government health personnel more aware of particular local practices and beliefs. It also provides a mechanism for logistic support, e.g., for the restocking of kits.

The objectives of supervision range from control by licensing, registration, and monitoring, to support through continuing education. Supervisory practices can range from minimal control activities at one end of the scale to maximum support activities at the other.

Thus, at one extreme, supervision may be minimal or even non-existent by intent. Countries may make a policy decision not to supervise trained traditional birth attendants, either because the authorities realize they do not have the necessary time, personnel, transport, or money, or because they want traditional birth attendants to continue to identify closely with the community and not with formal health services. In some countries training has had negative effects by changing community expectations regarding traditional birth attendants. In Zambia, for example, people refused payment to trained traditional birth attendants because they assumed they were now part of the health service and paid by it (G. Tremlett, personal communication, 1983). Once training is over, attendants may not have formal contact with the health system, unless they seek it. In this case, any improvements in their performance will depend on the quality of the initial training, and a recognition of this seems evident in some of the training programmes offered.

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A training programme for traditional birth attendants was carried out in Afghanistan on a national scale, as a partnership between a team of outsiders (Management Sciences for Health) supported by external donors and the Afghan Ministry of Public Health (2). Illiterate village dais were given an intensive five-week course so that they could provide primary health care to women and children under the age of 5 years in rural areas where access to basic health centres was difficult or where there were no health workers.

Teaching objectives were carefully planned, and "learning by doing" methods were used. The dai training teams (which included a trained dai) were themselves trained in these methods. Within a year the dais returned for a one-week refresher course. Unrest in rural areas made field supervision impossible, so in the end the success of the programme rested heavily on training.

Other countries are also concentrating on training to improve the practices of traditional birth attendants and, ultimately, maternal and child health. In Jordan, for example, the Ministry of Health is running intensive 9-day courses for the 350 registered dayahs to upgrade their existing skills. Each course takes only 4 dayahs at one time, so they receive close personal attention. Jordan plans to offer the course to unregistered dayahs too (3). A study in Bangladesh suggested that the training of traditional birth attendants alone was effective in reducing the incidence of tetanus (4). In other words, thorough training may offset later lack of supervision to some extent.

Most countries, however, try to provide some follow-up after training although this may be quite limited. For example, the registration or licensing of traditional birth attendants may be required. This implies control by the state, a control which may or may not be exercised in practice. "Enforcement of laws and prosecution of TBAs [traditional birth attendants] are virtually unknown, either because such actions would be culturally unacceptable, or because implementation of the law is not feasible since the number of active TBAs is so great and no other health resource is available" (5). Indeed, a report from Egypt in 1973 stated that, although traditional birth attendants were expressly forbidden by law to practise, there were areas in which they cooperated closely with government health personnel (6). However, the Government has now changed its policy towards them.

Although control, in the sense of an inspectorial or checking function, is still part of supervision, most trainers and supervisors stress the need for supervision based on maximum support. Very occasionally supervision succeeds in being supportive, but seldom for any length of time. Support is more usually limited to the replenishment of supplies or the checking of record cards, involving occasional visits by health personnel to traditional birth attendants, or by traditional birth attendants to health centres.

Finally, supervision may purport to be supportive, but actually be controlling, or *vice versa*. The admittance of traditional birth attendants to non-voting membership of the Sierra Leone Midwives Association, which may in the long run foster better practice, could be seen as either a controlling or a supportive action. However, this association is likely to be largely urban-focused, and only 20% of deliveries in the country's urban areas are performed by traditional birth attendants. The rest are performed by qualified midwives or doctors at home or in hospital (7). Most traditional birth attendants will be unaffected by the Association.

2. Existing systems of supervision

Current methods of supervising trained traditional birth attendants fall into four main overlapping categories, some being more widely used than others.

- supervision by the community;
- supervision by the birth attendants themselves;
- supervision by health workers;
- supervision through state licensing.

2.1 Supervision by the community

It is relatively rare for communities to be formally involved in the supervision of trained traditional birth attendants, although they may be involved in choosing those who are to be trained. However, the village health committee may be a means of linking the community and the traditional birth attendant. A village health education project in Nigeria led to the setting up of a village health committee which included two traditional birth attendants and three traditional healers. Recommendations by the committee led to a greater number of aseptic deliveries, the recording of births, and the performance of deliveries by traditional birth attendants in the nearest maternity centre, resulting in a 100% increase in attendance at the centre (8). Thus, while "supervision" was not mentioned, in fact participation in the committee stimulated the birth attendants to improve their delivery methods. In another African country, Burkina Faso, the village social committees (guided and assisted by the social services department) chose local traditional birth attendants for a 3-month training course, agreed to support them on their return from the course, and in several cases constructed small maternity wards as an expression of the villagers' wish to have their own "women houses". Although there has been a relatively high drop-out rate (30%), over some 5 years many of the birth attendants trained through this scheme have successfully bridged the gap between the community and the formal health services and provided a reliable system of health care for women and children. The community retains a watching brief through a system of remuneration (9).

2.2 Supervision by the birth attendants themselves

A few countries have been training traditional birth attendants long enough to use them in a supervisory capacity. This occurs in the Philippines, for instance, although it is relatively rare there. A group of 48 traditional birth attendants (hilots) with a good record as motivators of family planning were given an extra 4-week course in maternal and child health and first aid, after which they were designated as hilot aides. Under the supervision of the nurse at the local health centre they worked alongside 36 traditional birth attendants who had not received additional training. These hilot aides were later used as trainer-supervisors of other hilots. A thorough evaluation of this aspect of the project is not available, although in the orginal study the hilot aides performed better overall than did the ordinary hilots and were more acceptable to both professional health workers and clients (10).

In one part of Brazil, traditional birth attendants staff and run maternity centres themselves (11). Although they receive continuing education and supervision from their medical and nursing trainers, the attendants in the centres provide support for those of their colleagues who continue to do domiciliary deliveries. They may also help with record-keeping since, unlike the majority of traditional birth attendants, those at the maternity centres can all read and write. In a similar scheme in Senegal, traditional birth attendants work cooperatively under the direction of one of their number who has been trained (UNICEF-WHO, unpublished information, 1977). In both these programmes, although the attendants work together, and in that way are mutually supportive, they also receive regular supervisory visits from well qualified health personnel, and both programmes are funded, in whole or in part, by outside agencies. They also have firm links with the health services.

2.3 Supervision by health workers

This supervision by health workers is by far the most common type. The supervisory personnel may also be the trainers. They are rarely doctors, but most often midwives or public health nurses and sometimes auxiliaries, such as maternal and child health aides or auxiliary nurse midwives. Apart from their higher educational level and degree of training, they are distinguished from traditional birth attendants because they receive a salary from the formal health care system.

Such supervision may be "in-supervision" or "out-supervision", though these forms are not necessarily mutually exclusive. Where there is in-supervision the trained traditional birth attendants travel to the nearest health centre, maternity centre, health post, or hospital to receive supplies or stipends, or to hand in records of deliveries or family planning acceptors. In some countries they accompany mothers and assist with, or perform, deliveries in the health centre. Incentives may include meetings at which there is an exchange of ideas or problems, or at which new material is taught. In Haiti, where traditional birth attendants were responsible for bringing mothers and newborn babies for vaccinations, transistor radios were awarded for every 50 mothers and babies referred (12). Attendants advising on family planning may receive rewards for new acceptors. In all these cases, the attendants will weigh up the costs of earning such incentives, taking into consideration the alternative use they would make of the time. In the harvest, planting, or rainy season this factor may be crucial. They may also take into account the cost of making the journey and the way they are likely to be received by health personnel. Their decisions may be affected by a series of social obligations to kin, but not to people outside the family. A birth attendant may feel obliged to accompany a relative, but not a neighbour or friend.

Where there is out-supervision health workers visit traditional birth attendants in the field. The visits may be frequent or infrequent, short or long, and may have very different purposes. In Ghana, male supervisors merely checked the records kept by traditional birth attendants (13), while in some areas in the Philippines supervisors accompanied the attendants on home visits and summarized their activities each quarter, as well as convening monthly meetings with them (14). Visits may be made by one health worker or a team; they may be part of routine work or undertaken for a special purpose. Attendants may be visited individually or in groups assembled by locality.

Continuing education may be a component of supervision and may take place within or outside the community. In Zambia trained traditional birth attendants are gradually involved in health team activities in outreach clinics, so that, through contact with health workers, they become more adept at recognizing at-risk cases and learning about preventive measures generally. Confidence is gradually built up between the health workers and the birth attendants (K. Patel, personal communication, 1983). This is a two-way process, in which the health workers learn about cultural and local practices. However, this degree of collaboration occurs rarely. Indeed, although all the approaches mentioned above have been used in the supervision of trained traditional birth attendants (and others engaged in primary health care), it has to be stressed again that they seldom work consistently.

2.4 Supervision through state licensing

In some countries trained traditional birth attendants are licensed to practise by the midwives' council or association, or by the Ministry of Health. In Cost Rica and Colombia, women wishing to have their babies delivered by a traditional birth attendant have to get a permit from the doctor in the local health centre. The extent to which this acts as a control on traditional birth attendants differs from place to place. Many countries register them - at a health centre, at the town council headquarters, or at the Ministry of Health. Where incentives or stipends are given, such registration may be necessary for record-keeping. Records may also be used for evaluating how often the attendants refer at-risk mothers. Other countries give a certificate to trained attendants. The certificate may merely certify that the attendant is trained, or it may be a licence to practise that has to be renewed each year. In Ecuador the latter kind of certificate is granted only after a physical check-up and a review of individual records. The proportion of traditional birth attendants persuaded to register is usuallly relatively modest.

3. Why supervision fails

Provision for supervision and follow-up is seldom incorporated in plans for training programmes for traditional birth attendants, nor are resources for supervision adequately considered. It is often assumed that it will be the task of an existing health worker, already fully employed. Supervision is not seen as part of an integrated system of health care, or as part of the information system. Although theoretically important, in practice supervision is usually piecemeal and inadequate. There are many reasons for this.

3.1 Poor planning

Few of the programmes develop a system of supervision that explicitly identifies the objectives of supervision and the means whereby those objectives can best be reached. Supervision is not often specifically incorporated into work routines, and even when it is other problems arise. The Nicaraguan Ministry of Health prescribed that each local clinic should devote two person-days per month to field visits to trained traditional birth attendants. These visits were not, however, underwritten by funds for travelling expenses, nor were staff instructed in supervision techniques. As a result they were sometimes made reluctantly, and the staff tended to emphasize the areas of the training programme with which they were most familiar, by rechecking retention of knowledge and supplies, rather than reviewing the quality of the service provided (15).

Since traditional birth attendants often live in scattered, remote villages, supervision may be costly and difficult. In a project in Ghana it was decided that one way of overcoming this problem would be to train a health educator/community development worker in methods of supporting village-based voluntary health workers (13).

3.2 Who supervises?

Aside from the lack of planning for supervision, it is difficult to decide who should do the supervising. Most governments are training health workers with special skills in maternal and child health as well as midwifery. There are often clashes between these workers and traditional birth attendants. Some of these clashes occur because the health service workers are young and sometimes unmarried, so that they carry little authority with either the birth attendants or the women of the community. The quality of their practical training may be poor: in India, the auxiliary nurse midwives, who are supposed to supervise the trained traditional birth attendants, have little actual experience of deliveries. In some parts of India, the auxiliary nurse midwives have become identified with sterilization programmes, and women seldom call on them for advice or help during pregnancy, childbirth, or the immediate postpartum period (16). In some instances, health centre personnel are ill-prepared to deal with at-risk cases referred by trained traditional birth attendants, reducing the value of the attendants' surveillance activities and also their confidence. In Afghanistan, health centre doctors were less experienced and knowledgeable about delivering babies than the average dai (2).

In Sierra Leone many (though not all) young maternal and child health aides have a poor relationship with the traditional birth attendants who consider the aides incompetent or disrespectful (17). Indeed, it is often pointed out that the health workers who are supposed to supervise traditional birth attendants receive little support themselves. A trained village midwife in a remote village in the Sudan practised for 5 years without a single supervisory contact (18). The health workers sometimes see the birth attendants as competitors - and dislike them because they are more popular with the community.

However, there are also examples of good relations, or relations that have improved with time. Although the Egyptian Ministry of Health has banned dayas from practising, the public health personnel in the field fully recognize their importance and consider them an indispensable extension of the maternity and child health services. The daya is "effective as a screening and referral service, taking care herself of all the cases she can handle and referring to the public health services those in need of special medical attention. In this way she has lightened the burden on an already over-extended health service, thus allowing it to give more concentrated and better service to the more complicated cases" (6). In a small project in Kenya, 81% of trained traditional birth attendants consult health units when in difficulty, and all say that they advise pregnant women to attend antenatal clinics (M. Memia, unpublished information, 1983). In one province in Zimbabwe, although there has not yet been an evaluation of the training programme for traditional birth attendants, there is evidence of a good rapport between birth attendants and clinic staff (19). In Malaysia the trained bidan kampung were at odds with the trained midwives until an attempt was made to give them complementary roles with the trained birth attendants still carrying out the ritual and supportive duties surrounding the birth, and the government midwife doing the actual delivery and cord-cutting (20). After five years, the proportion of babies delivered by government midwives had doubled to 62.4%.

The importance of the relationship between traditional birth attendants and health workers must be emphasized. If the former feel they are treated condescendingly or without respect, they are unlikely to want contact with government health personnel. If they are not perceived as useful or competent by government health workers, they are unlikely to display positive attitudes towards them. Similarly, if trained health workers are uneasy or lack confidence in their own technical skills or supervisory roles, they are unlikely to be able to support traditional birth attendants after training.

3.3 Logistic problems

There are numerous logistic weaknesses in the supervision of traditional birth attendants. The majority of them live in remote areas, or at least some distance from health centres or clinics. Roads are often poor, mechanized transport is scarce and unreliable, and petrol for vehicles is extremely expensive. Incentives are rare for in-supervision (to encourage the birth assistants to come into the health centre) or for out-supervision (to encourage health workers to make field visits, notably by covering their expenses). If incentives do exist in theory, in practice they may be delayed. Supplies run out and cannot easily be replaced, or replacements arrive at unpredictable intervals.

Exacerbating these essential administrative difficulties are the attitudes of health care staff, who may be reluctant to leave the health centre for a variety of reasons, legitimate or otherwise. Poor initial training, an overload of patients at the health centre, weak administrative links affecting the regular delivery of salaries, drugs, and so on may result in a poorly motivated staff with a general sense of frustration and little interest in supervision.

4. Supervision strategies likely to succeed

While it seems likely that the supervision of traditional birth attendants would improve their performance, there are almost no well-designed studies to show that it does. Indeed, little has been published on the subject. This is possibly because such supervision so often fails to achieve what is expected of it. An example of the kind of study needed comes from the Philippines, where, of three groups of hilots who received training in maternity and child health and family planning, the most successful was clearly the one that was supervised. Of the other two groups, one received training only and one a financial incentive only. Assessment was limited to the measurement of the total number of family planning acceptors recruited. The supervised hilots recruited twice as many as those who had received training only, and more than those who received a financial reward (D. E. Morisky, unpublished information, 1977).

The problem of supervising traditional birth attendants should not, however, be isolated from the general problems of supervising primary health care workers. It is increasingly accepted that no system of primary health care will function adequately without support or a reasonable referral network. Within the context of primary health care, it is the teams of health workers (including the traditional birth attendants) that need support, and supervisory activities should be combined in order to maximize resources. An integrated approach may make it possible for the roles of professional health workers (whether auxiliary nurse midwives or maternal and child health aides) and of traditional birth attendants to become more fully complementary. As the professionals gain in experience and confidence, a mutual support system may build up, as in Malayia, where the majority of babies are actually delivered by government midwives, in the presence of traditional birth attendants, who perform other important functions. Other types of support may be provided. In Guyana the morale and enthusiasm of field staff are maintained by means of a two-way radio-system, which has helped to build up confidence through exchanges of ideas and information (21). Perhaps traditional birth attendants could be kept in touch in a similar way.

Those projects in which supervision has been at least relatively successful are most often part of larger research or intervention projects, with considerable inputs of outside funds and/or personnel. Very often they were initiated by one or more highly committed individuals. The programmes are usually well-planned, and support is an integral part of the training programme. Serious efforts are made to guarantee supervision, including the provision of supplies and salaries or stipends, refresher courses, and continuing education. Programmes initiated by Ministries of Health have often suffered from the weaknesses inherent in many health service structures and inadequate training systems. As in many primary health care schemes, difficulties arise when attempts are made to replicate small, relatively limited projects countrywide (22). Even when supervision is planned and incorporated into a national programme, as has been done in both Thailand and the Philippines, major constraints are created by weaknesses in the health service infrastructure.

In Thailand, traditional birth attendants are closely supervised for the first month after training, through follow-up visits by auxiliary midwives. Supervisory visits then take place once every 3 months, and group meetings of the attendants are supposed to take place at regular intervals. The attendants are also supposed to go to the health stations once a month to renew supplies or accompany clients. For their part, supervisors are required to produce evaluations of the attendants and to send records of their work to the district health officers. In the Philippines the midwife or public health nurse in the community convenes monthly meetings for the traditional birth attendants under her jurisdiction, during which deliveries attended are discussed and kits checked and restocked. In practice, meetings do not take place regularly, in either country, because of a shortage of personnel or poor relations between health personnel and birth attendants. When meetings do occur, attendance by the latter may be low. There have been delays in the delivery of kits and supplies, and in Thailand the payment for recruiting family planning acceptors was not enough to cover the expenses of the birth attendant's journey to the health centre (14). Between 1954 and 1956 programmes in one Indian state were plagued by similar logistic problems with only 54% of the trained traditional birth attendants maintaining any contact with primary health care staff (23).

Support facilities and referral networks for primary health care are essential if peripheral services are to work, and the traditional birth attendants should be considered as part of the system. If the birth attendants are members of the primary health care team, supervision is easier. In Niger mobile teams of health promotion workers visit health teams once a month. They replenish supplies for both the traditional birth attendant and the first aid agent, discuss problems with the birth attendant and villagers, settle disputes, and collect statistics (24). The activities of the mobile teams are, however, always limited by the inadequacy of the road network and the high price of petrol.

Some lessons are obvious. Those supervising need to have some training in objectives and methods of supervision. They need to feel at home in their roles as supervisors, without being over-confident. They need to have the stimulus of continuing education and to be supervised themselves. They need to respect the traditional birth attendants and to believe in the value of their work.

Technical support and supervision are not sufficient, however. Communities need to be involved, so that they can play a supportive role. Sending a trained traditional birth attendant back to a village without explaining to the community what she has learned may negate much of her training. The holding of some kind of ceremony on her return might be one way of endorsing the training and recognizing her increased knowledge. In very remote communities, individuals such as teachers may act as intermediaries between the health services and the traditional birth attendants, providing support by helping with records, for example, or even by giving simple refresher classes. The attendants' new status may be confirmed by, for example, expanding their functions to allow them to prescribe and sell simple medicines or material such as cotton wool.

In some countries in Latin America (notably in Honduras) trained traditional birth attendants buy supplies at cost price from the health centre where they have trained, and then sell them to pregnant women in the community. "It is more dignified and avoids the problem of dependence" (Centro Médico Evangelico, Honduras, unpublished information, 1979). Credit is given when necessary. The community has an added interest in supporting their traditional birth attendants and will complain if supplies are not renewed, or if they are being charged too much.

However, one caveat is necessary. While communities are concerned about health, childbirth is usually seen as a natural phenomenon and perceptions of the need for ante- or post-natal care may be low. Health is also usually given low priority by comparison with food, roads, water, or income-generating activities. Thus communities may not give very active support to traditional birth attendants.

While the complex relationship between the community and traditional birth attendants must be taken into account in the subsequent support of those who have been trained, the effectiveness of the training will depend far more on the relationship between the health staff and the birth attendants. Many schemes provide evidence of conflict or tension between these groups, and the promotion of mutual respect may be the key to successful supervision.

For example, if traditional birth attendants are trained locally, in their own villages or in one of a cluster of villages, by local health staff, this may foster better relationships and instil trust and mutual respect, leading to better collaboration. In a current project in Sierra Leone, auxiliary nurses in two districts are being trained to instruct traditional birth attendants in the villages near their respective peripheral health units. They do this intermittently over a period of several months to establish good relations and build up trust. Thus both training and supervision are local (N. Edwards, personal communication, 1983). Sierra Leone also furnishes the example of successful collaboration between maternal and child health aides and a local elderly Sande (name of a secret society) midwife (17).

In a province in Zimbabwe, the major goal of the project for the training of traditional birth attendants has been to establish a good rapport with the staff of the maternity health centre, in the belief that this will lead to better maternal and child health in the area. Special emphasis is therefore placed on building up local supportive contacts during the training sessions. By establishing mutual respect, it is hoped that links will be maintained after training, even though supervision is minimal (19).

5. Conclusions

A review of international experience shows that the constraints on supervision can be identified as falling into five major categories:

- weak technical, organizational, and administrative support;
- dispersed and isolated communities;
- lack of rapport between health service personnel and traditional birth attendants;
- failure to involve communities in training programmes for traditional birth attendants;
- limited financial support for training and supervision.

Some ways of improving supervision have been discussed. They are linked by three major themes. First, the improvement of supervisory strategies depends on a realistic appraisal of local conditions. For instance, where the situation renders close supervision impossible, there may be intermediaries in the community who can support the trained traditional birth attendants. Teachers, religious leaders, or other traditional practitioners may be helpful in keeping records, for example. Secondly, a valuable tool for encouraging better supervision is the continuing education, through workshops and meetings, of trainers, supervisors, and traditional birth attendants. Experience suggests that workshops not only function as forums for learning, reinforcing knowledge, and exchanging information, but also provide opportunities for meeting colleagues, for enjoyment, and for boosting morale. Thirdly, it is the support end of the supervision spectrum that should be emphasized. Control by law, registration, or other means is at present not considered feasible or useful in the great majority of countries training traditional birth attendants (25). What seems clear is that support and supervision for trained traditional birth attendants are easier to sustain and to guarantee in relatively contained, local programmes, where local health personnel are interested in, and committed to, the idea of working with them.

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The World Health Organization is committed to the training and deployment of traditional birth attendants as a means of extending the reach of the limited health services in developing countries. Any training programme faces daunting problems, however, if attempts are made to change long-established customs in rural populations.

In the hope that it may encourage others to introduce or improve existing training schemes, this book reports on programmes that have overcome some of the problems involved in improving the knowledge and practice of traditional birth attendants with considerable success. Evaluation studies are not easy, but the examples given illustrate the range and the quality of the evidence such studies can yield.

The book will be of considerable interest to health personnel actually involved with the training and supervision of traditional birth attendants, as well as to health administrators and managers and social scientists concerned with programmes to make use of their skills within the context of primary health care.

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